B. The Subject Matter of the Patents in Suit: Foam Cup Manufacture.

Patent 3,125,780 is concerned with an apparatus and Patent 3,162,705 with a method for molding one-time-use, throw away, disposable, inexpensive cups from foam polystyrene beads. The resulting cups are referred to in the trade as foam cups. Patent 3,125,780 resulted from a division of 3,162,705 with both originating in an application filed October 1, 1957. That application is the first disclosure anywhere of a method and apparatus for producing thin wall cups from foam polystyrene beads.

REASONS FOR ALLOWANCE OF THE WRIT.

A. Reasons: The Presumption of Validity (35 U. S. C. 282) Should Not Be Ignored.

Patent 3,162,705 was allowed by the Patent Office Board of Appeals over a Jeffery reference. The California District Court held 3,162,705 invalid over the same Jeffery reference, even though the Defendant did not notice the Jeffery reference under 35 U. S. C. 282, did not rely upon the Jeffery reference, did not argue the unpatentability of either 3,162,705 or 3,125,780 over the Jeffery reference, and did not urge that the Board of Appeals in the Patent Office erred in granting the patent over the Jeffery reference. As to the Jeffery reference, the Defendant made no effort whatsoever—absolutely none—to rebut the statutory presumption of validity that the patents enjoy under 35 U. S. C. 282.

The California District Court ignored the validity presumption and flatly overruled the Patent Office Board of Appeals on the Jeffery reference *without any evidence from the defendant to rebut the correctness of the Board's decision.*

The question of whether or not the presumption of validity had been overcome by clear and convincing evidence is not raised here. The sufficiency of the evidence was not in issue since there was no evidence.

According to *Mumm* v. *Decker & Sons*, 301 U. S. 168 (1937), the defendant's burden in rebutting the presumption under 35 U. S. C. 282 is "a heavy one" and "every reasonable doubt should be resolved against him." Surely the presumption of validity means something. But here nothing.

B. Reasons: To Determine Infringement, This Court's Decision in Graver Tank Co. v. Linde Air Products Co., 339 U. S. 605 (1949), Requires a Threshold Determination of Whether or Not the Claims of the Asserted Patent Read on the Accused Structure.

In *Graver Tank* this Court established that in determining patent infringment a threshold determination *must* be made as to whether or not the claims of the patent read on the accused device.

> "In determining whether an accused device or composition infringes a valid patent, resort must be had in the first instance to the words of the claim." (p. 607.)

After that determination is made, the Court should then go into ancillary questions, if necessary, such as file wrapper estoppel, equivalency, the prior art, etc. But those matters can only be inquired into after an initial determination has been made as to whether the claims read.

Here the Arizona Court refused to apply the claims of the patent in suit to the accused device. Rather, the Arizona Court approached infringement on a two step basis, first, a piece-by-piece comparison of the accused machine with a multitude of prior art references, and, second, a piece-by-piece differentiation between the ac-

cused machine and the particular machine shown in the patents in suit. If the infringement test applied by the Arizona Court is proper, then few if any patents would ever be or could be held infringed. The two step infringement test derived by the Arizona Court is completely unique. There is no basis for it in any decisions of this Court.

C. Reasons: The Award of Attorneys' Fees in the California Case Is a Penalty for the Patentee's Compliance With the Rules of Practice in Patent Cases Resulting in an Inherent Conflict Between 35 U. S. C. 285 and Rules 117, 118 and 124 of the Rules of Practice in Patent Cases. (37 Code of Federal Regulations §§ 1.117, 1.118 and 1.124.)

The California Court awarded the Defendant $35,000 in attorneys' fees under 35 U. S. C. 285:

> "The Court, considering the evidence heretofore discussed, finds that the action can be said to have been brought in bad faith; that it is an exceptional case within the meaning of 35 U. S. C. § 285; and, that reasonable attorney fees should be awarded to the prevailing party."

The Court based its award on the prosecution of Crown's '780 and '705 applications before the Patent Office with the finding that:

> "Crown intended to and did enlarge the scope of its '705 and '780 patent applications while they were pending before the United States Patent Office for the purpose of appropriating the 'positive pressure' improvement for loading the mold cavity—an improvement developed by persons other than Crown. * * * Since the illegal enlargement by Crown of its '705 and '780 patent applications has been the keystone of this suit, Crown should pay Sutherland its attorneys' fees as contemplated by 35 U. S. C. 285."

The "illegal enlargement" referred to involves the cancellation of a portion of the specification while the application was pending, and its subsequent verbatim reinsertion while the application was still pending, as authorized by Rule 124 of the Patent Office Rules.

A patent applicant's conduct is legal when it is within the Rules of Practice in Patent Cases, in the establishments of those rules by the Commissioner of Patents is specifically authorized by 35 U. S. C. 6—Duties of Commissioner:

> "The Commissioner * * * may * * * establish regulations, *not inconsistent with law,* for the conduct of proceedings in the Patent Office." (Emphasis added.)

Rule 117 (37 C. F. R. § 1.117), as duly established by the Commissioner, reads:

> "Amendment and revision required. The specification, claims and drawing must be amended and revised when required, to correct inaccuracies of description and definition or unnecessary prolixity, and to secure correspondence between the claims, the specification and the drawing."

Rule 118 (37 C. F. R. §1.118), as duly established by the Commissioner, reads:

> "Amendment of disclosure. In original applications, all amendments of the drawings or specifications, and all additions thereto, must conform to at least one of them as it was at the time of the filing of the application. Matter not found in either, involving a departure from or an addition to the original disclosure, cannot be added to the application even though supported by a supplemental oath, and can be shown or claimed only in a separate application."

Rule 124 (37 C. F. R. § 1.124), as duly established by the Commissioner, reads:

> "Amendment of amendments. When an amendatory

> clause is to be amended, it should be wholly rewritten and the original insertion canceled, so that no interlineations or deletions shall appear in the clause as finally presented. *Matter canceled by amendment can be reinstated only by a subsequent amendment presenting the canceled matter as a new insertion.*" (Emphasis added.)

Here, the patent applicant's conduct was in complete accord with these rules and the California Court did not hold otherwise. Further, the California Court did not point to any rule of the Patent Office that the patent applicant violated in the prosecution of its patents.

To then characterize such conduct as "illegal" as a basis for an award of attorneys' fees under 35 U. S. C. 285 renders Rules 117, 118 and 124 illegal in some respects. Either the patent applicant cannot delete a portion of his original specification during the pendency of his application, as presently authorized by Rule 117, or once having deleted it, he cannot reinsert it during the pendency of the application, as presently authorized by Rule 124, without engaging in "illegal" conduct. The California Court did not find that this patent applicant violated Rule 118 by inserting "new matter" in the application, which is strictly prohibited by this rule. Hence, the holding of "illegal" conduct before the Patent Office inherently makes either Rules 117, 118 or 124, or all of them, illegal.

We emphasize that this present patentee did not insert any new matter in his pending application.

CONCLUSION.

The statutory presumption of validity under 35 U. S. C. 282 should in no event be ignored and in any event should not be abolished without some evidence to the contrary. Here, there was no evidence to the contrary—not a scintilla. The California Court placed itself directly opposed to the statutory presumption of validity arising from the patents' issuance by the Patent Office Board of Appeals without any evidence to substantiate or justify its action. The affirmance thereof on a per curiam basis by the Ninth Circuit is in clear conflict with this Court's holding in *Mumm* and with the other Circuits.

The infringement test originated by the Arizona Court, as affirmed per curiam, leads to an impossible standard and one directly in conflict with this Court's holding in *Graver*.

The award of attorneys' fees under 35 U. S. C. 285 by the California Court renders either Rule 117, 118 or 124 of the Patent Office Rules illegal and, unless clarified by this Court, will upset standards and practices before the U. S. Patent Office of long standing.

Respectfully submitted,

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APPENDIX A.

UNITED STATES COURT OF APPEALS
For the Ninth Circuit.

CROWN MACHINE & TOOL CO., a Corporation,
Plaintiff-Appellant and Cross-Appellee,
vs.
D & S INDUSTRIES, INC. (formerly Thompson Industries, Inc.),
Defendant-Appellee and Cross-Appellant.
Nos. 22,189
22,189-A

Appeal from the United States District Court
for the District of Arizona

CROWN MACHINE & TOOL CO., a Corporation,
Plaintiff-Appellant and Cross-Appellee,
vs.
KVP-SUTHERLAND PAPER COMPANY, a Corporation,
Defendant-Appellee and Cross-Appellant.
Nos. 23,006
23,007

Appeal from the United States District Court
for the Northern District of California

[February 13, 1969]

Before: HAMLEY and CARTER, *Circuit Judges,* and McNICHOLS, *District Judge.**

* The Honorable Ray McNichols, United States District Judge for the District of Idaho, sitting by designation.

PER CURIAM:

The first of the two above-entitled causes arose in the United States District Court for the District of Arizona (Phoenix case). The second arose in the United States District Court for the Northern District of California (San Francisco case). Both cases relate to the asserted appropriation by Thompson Industries, Inc. (Thompson) of a number of inventions allegedly covered by patents issued to Crown Machine & Tool Co. (Crown).

The inventions in controversy were machines for, and methods of, manufacturing molded polystyrene cups for holding hot liquid. Thompson made and sold machines assertedly covered by a license agreement entered into by Crown and binding on Thompson, which machines allegedly infringed Crown's appliance and method patents.

The Phoenix case was brought by Crown under 28 U. S. C. § 1332 (1964), charging defendant Thompson with failure to pay royalties under an assigned patent license contract. Thompson has since been succeeded by D & S Industries, Inc., but for convenience we will refer to Thompson instead of its successor. Thompson denied liability for royalties, and counterclaimed for a declaratory judgment that no royalties were due and that machines manufactured by Thompson do not infringe Crown patents 2,951,260 (260), 3,125,780 (780), or 3,162,705 (705), and that each such patent is invalid. Thompson also asked for treble damages in the sum of $750,000 for asserted violation of the antitrust laws.

The Phoenix case was tried without a jury. In an opinion filed on May 25, 1967, and reported in 270 F. Supp. 271, the district court held that no royalties on cups from Thompson machines were due Crown under the license agreement, that the Thompson machines did not infringe any of the Crown patents, and that Crown did not violate

the antitrust laws. The Phoenix court did not reach the question of validity of the patents. A decree was entered dismissing Crown's claims and Thompson's counterclaims pertaining to validity of the patents and violation of the antitrust laws. The decree contains a declaration that the Thompson machine does not infringe any of the Crown patents. Crown appealed and Thompson cross-appealed.

In the San Francisco case, brought under 28 U. S. C. § 1338 (1964), Crown charged defendant KVP-Sutherland Paper Company (KVP), a purchaser and user of Thompson machines, with infringement of claim 12 of Crown's 260 patent, claims 1 and 3 of Crown's 780 patent, and the single claim of Crown's 705 patent. KVP filed an answer denying the critical allegations of the complaint and affirmatively alleging that the Crown patents are invalid, that Crown has misused the patents in a manner which violates the antitrust laws, and that Crown comes to court with unclean hands. KVP also counterclaimed for injunctive relief, an accounting, unspecified treble damages for violation of the antitrust laws, and for reasonable attorneys' fees under 15 U. S. C. § 15 (1964) and 35 U. S. C. § 285 (1964).

The San Francisco case was also tried without a jury. In decisions filed September 26, 1967, April 4, 1968, and April 29, 1968, reported in ..... F. Supp. ....., the district court held that claims 1 and 3 of Crown's 780 patent and the single claim of the 705 patent were invalid, that claim 12 of the 260 patent was valid but not infringed, that Crown had not violated the antitrust laws, and KVP was awarded attorneys' fees in the amount of $35,000, under 35 U. S. C. § 285. A judgment was entered dismissing Crown's complaint and KVP's counterclaim under the antitrust laws, and awarding KVP attorneys' fees in the indicated amount. Crown appealed and KVP cross-appealed.

The opinions and judgments in the two district court

cases were filed following the entry of detailed findings of fact and conclusions of law. In their respective opinions, the two district courts discussed the various issues in depth and dealt at length with both the facts and the relevant principles of law.

Our review of the same issues convinces us that the district courts reached the right results for the right reasons, and that a restatement, *in extenso*, of these reasons in this opinion would serve no useful purpose. Accordingly, we hold as follows:

1. The determination of the district court in the Phoenix suit that Thompson is not liable to Crown for royalties with regard to the manufacture and use of Thompson machines, is sustained for the reasons stated in *Crown Machine & Tool Co.* v. *D & S Industries, Inc.*, 270 F. Supp. 271, 276.

2. The determination of the district court in the San Francisco suit that Crown patents 705 and 780 are invalid for obviousness, is sustained for the reasons stated in *Crown Machine & Tool Co.* v. *KVP-Sutherland Paper Company,* ..... F. Supp. ..... (Tr. 68, 80)

3. If this court is mistaken in sustaining the determination of the district court in the San Francisco suit that Crown patents 705 and 780 are invalid, then the determination of the district court in the Phoenix suit that the Thompson machines do not infringe those patents, is sustained for the reasons stated in 270 F. Supp. at 277-278.

4. The determination of the district court in the San Francisco suit that claim 12 of Crown patent 260, if broadly read, is invalid for obviousness, but if narrowly read, is valid, is sustained for the reasons stated in *Crown Machine & Tool Co.* v. *KVP-Sutherland Company,* ..... F. Supp. ..... (Tr. 87-89)

5. The determination of the district court in the San Francisco suit that if claim 12 of Crown's 260 patent is narrowly read and thereby valid, it is not infringed by the Thompson machines, is sustained for the reasons stated in *Crown Machine & Tool Co.* v. *KVP-Sutherland Paper Company,* ..... F. Supp. ..... (Tr. 92)

6. The determination of the district courts in both suits that Crown is not liable to defendants under the antitrust laws is sustained for the reasons stated in the two reported district court decisions referred to above, 270 F. Supp. at 278-280, and ..... F. Supp. at ..... (Tr. 97)

7. The determination of the district court in the San Francisco suit, awarding KVP attorneys' fees in the sum of $35,000, is sustained for the reasons stated in ..... F. Supp. ..... (Tr. 98, 122, 123)

The judgments are affirmed on the appeals and cross-appeals for the reasons approved herein.

APPENDIX B.

UNITED STATES DISTRICT COURT
District of Arizona.

CROWN MACHINE & TOOL CO., *Plaintiff-Counter-Defendant*, *vs.* D & S INDUSTRIES, INC. (formerly Thompson Industries, Inc.), *Defendant-Counter-Plaintiff*.	Civil 4942-PHX.

OPINION.

KILKENNY, *Judge*:

This is a suit by Crown Machine & Tool Co. (Crown), against Thompson Industries, Inc. (Thompson), whose corporate title is now D & S Industries, Inc., for an accounting of royalties alleged to be due from defendant under an assigned patent license agreement. Defendant counterclaimed, first for declaratory relief, and second for damages under the antitrust laws.[1] The litigation is centered around disposable drinking cups manufactured from expandable polystyrene beads, which, in turn, draws into focus the scope, utility and operating effect of certain patents owned by Crown. Expandable polystyrene beads became generally available in America in 1954. These beads are small plastic particles impregnated with an expanding agent. Upon heating within a closed mold the

1. 15 U. S. C. §§ 1 and 2.

beads expand and fuse together in a solid light weight plastic article which has the shape of the mold.

Crown, in 1956, decided to manufacture this type of drinking cup, and by December 12, 1957, was distributing the product which was produced by its molding machines. As a result of this experiment, Crown applied for and became the owner of United States Patent 3,162,705 (705), which describes a "Method for Making Plastic Containers" and United States Patent 2,951,260 (260), which contains a detailed analysis of a "Molding Mechanism and Heating Arrangement". The 705 Patent was granted December 22, 1964, as the result of an application made on October 30, 1956. The 260 Patent issued September 6, 1960, was originally applied for on October 1, 1957. Crown is also the owner of United States Patent 3,125,780 (780), which was granted March 24, 1964. That patent describes an "Apparatus and Method for Making Plastic Containers." To commercially exploit the process, Crown entered into negotiations with Champion Papers, Inc. (Champion) and, on July 7, 1958, granted to Champion an exclusive license, whereby the latter could use throughout the United States (with the exception of Texas, Oklahoma and Louisiana) the subject matter disclosed in a group of patent applications, which included the then pending applications for the 260 and 705 Patents. On September 5, 1958, Crown sold Champion the first of several cup molding machines of the type described in the 260 Patent, and Champion began production soon thereafter.

Thompson first entered the picture in late 1959, after observing one of Crown's cups in Phoenix. It became interested in the product and, after encouragement from the Koppers Company of Pittsburgh, a supplier of expandable polystyrene beads, developed a molding machine which would produce drinking cups.

Crown continued to produce and sell foam cups on its

machines, for the three-state market exempted from Champion's license until April of 1960, at which time it sold its remaining cup business to Champion. Champion then began designing a new machine for molding cups from expandable polystyrene beads. The development of this "Champion machine" resulted in a patent application by Champion on February 1, 1963, which was honored on August 24, 1965, by the issuance of U. S. Patent 3,202,734 (734).

By late 1961, Thompson and Magi-Cup Corporation of California, with which it had merged, posed a serious competitive threat to Crown and Champion. On December 15, 1961, a Champion vice-president wrote Detweiler, President of Crown, expressing the former's concern about increasing competition.

On July 6, 1962, Crown wrote six concerns, including Thompson, identical letters referring to its 260 Patent, asserting possible infringement. In the ensuing exchange of correspondence between Crown and Thompson, Thompson denied infringement and Crown demanded an inspection of the Thompson machines.

Rather than abating, competition in the foam polystyrene cup industry increased after the warnings sent by Crown in July, and by the fall of 1962 Champion's dominant position in the industry had declined to the point where it had less than 50% of the total sales volume. Under the Crown-Champion license agreement, Crown had the responsibility to enforce the patent rights, and Champion became quite forceful in its demands that more suits be instituted. On October 22, 1962, a Champion officer wrote Crown's president demanding the commencement of an infringement suit against Thompson, among others.

In October of 1962, Crown's counsel received a detailed description of the Thompson molding machine, and in Janu-

ary of 1963 a Crown representative inspected one of the Thompson machines. Conferences between Crown and Thompson proved futile, as Thompson insisted its machines did not infringe on the former's patents.

On August 2, 1963, Champion sold Crown a portion of its polystyrene cup business, and at the same time these two concerns entered into a revised license agreement. By the terms of this agreement, Champion was given the non-exclusive right to use Crown patent rights in the production of cups and containers from expandable plastic materials, and to make and use machines for their manufacture, for a royalty of 2% of the net sales of cups and containers. The royalty obligation, however, extended only to cups and containers covered by claims on any patent among the "Crown patent rights", and to those made on any machine or by any method covered by claims among the "Crown patent rights." Of particular importance to this suit is Section 10 of the agreement, which gave Champion the right to assign or transfer its non-exclusive license in connection with the disposal of its business related to the production of cups and containers from expandable plastics:

> "CHAMPION and its subsidiaries shall also have the right to dispose of its business related to the manufacture, use, or sale of cups and containers from expandable plastics under the 'CROWN patent rights' and 'CHAMPION patent rights' including all or substantially all of the assets of such business, and in connection therewith CHAMPION shall have the right to assign or transfer this license, except that as to said assignee or transferee the license shall be non-transferable, provided that CHAMPION transfers to such party at least a substantial portion of its facilities for said manufacture."

Shortly after the above agreement was executed, Thompson became interested in acquiring a plant in the Eastern

United States, and began negotiations with Shield-Ware, Inc., a Champion subsidiary with production facilities in New Jersey. Subsequently, Shield-Ware sold substantially all its assets related to the production of cups and containers from expandable plastics to Thompson on September 9th. In connection with this sale, Champion executed a formal assignment to Thompson of its rights under the above section.

After Thompson had operated the facility, formerly owned by Shield-Ware, for one month, it tendered Crown a royalty check for the cups produced on the Champion machines which were purchased with the plant, in accordance with Champion's contract with Crown. Crown refused the tender, stating that it considered Thompson obligated, under its assignment from Champion, to pay royalties on the production of all its plants and on any Thompson machines placed in the New Jersey plant. When Thompson refused to pay royalties on any production other than that from the Champion machines, Crown filed this suit.

Issues.

The specific issues upon which the Court took evidence are as follows:

I. Is Crown entitled to an accounting for royalties on net sales of foam cups manufactured by Thompson on its "Champion" and "Thompson" machines under the provisions of the license agreement?

(a) Is Thompson a licensee of Crown with regard to its manufacture and use of Thompson machines?

(b) Does claim 12 of the 260 Patent cover defendant's Thompson machines?

(c) Do claims 1 and 3 of the 780 Patent, or either of them, cover defendant's Thompson machines?

(d) Does the claim of the 705 Patent cover the method used in operation of defendant's Thompson machines?

(e) Is Crown entitled to enforce the license agreement against Thompson?

II. Has Crown violated the antitrust laws of the United States, specifically 15 U. S. C. §§ 1 and 2, in its obtaining of and its use of the licensed patents?

(a) By its licensing of any or all of the patents upon which it seeks to recover royalties in the complaint; or

(b) By its prosecution in the U. S. Patent Office of any of the applications which matured into the 260, 780 and 705 Patents; or

(c) By bringing action in several Federal Courts for the enforcement of any of the above patents?

III. Is Thompson entitled to a declaratory judgment that none of the claims of the 260, 780 and 705 Patents cover the Thompson machines and that no royalties are due and payable to Crown on account of production of foam cups on such machines or on account of the manufacture and use of Thompson machines?

Crown argues that by becoming its licensee after being charged with infringement, Thompson intended to submit its own machines to the Crown license. I disagree. Crown, in July of 1962, did charge Thompson, and others, with infringement, but Thompson denied infringement then, and has not changed its position. At no time did Thompson desire or request a license to manufacture or operate its own machines.

By February of 1963, Champion had lost nearly $1,500,000.00 on its foamed cup venture, and the company was anxious to terminate that line. Champion realized, how-

ever, that it could not effectuate a sale of its plant and machinery if the buyer would not receive a license to operate the equipment and, as a result, its contract with Crown was revised August 2, 1963, to provide that the right to operate the molding machines would transfer along with the sale of substantially all its related assets. At this time, Champion had no rights or obligations on any cup molding machines other than its Champion machines. Accordingly, when Thompson agreed to pay royalties "*in the place of Champion*" it only assumed an obligation with regard to the 15 Champion machines.

Clearly, Thompson intended to become a licensee only as to the Champion machines. Prior to the purchase of assets, it vigorously denied all claims of infringement and, rather than seeking a license, almost dared Crown to bring suit. The evidence is clear that this position was not changed at the time of the purchase of Champion's plant, and that Thompson intended to become a licensee only insofar as the 15 Champion machines it purchased.

To conclude that Thompson and Champion did not intend that Thompson become a Crown licensee, except for the limited purpose of operating the 15 Champion machines, does not, in itself, mean that no royalties are due Crown for the cups produced by the Thompson machines. Section 6(a) of the revised licensing agreement[2] executed by Crown and Champion on August 2, 1963, is pertinent and controlling on this issue. So even though Thompson did not intend to become a Crown licensee with regard to the use

2. "CHAMPION shall have no obligation hereunder to report net sales or to pay royalties to CROWN except as to cups and containers made and sold by CHAMPION or its subsidiaries which are covered by a claim of any issued patent in said 'CROWN patent rights' or which are made by CHAMPION on any machine or by any method covered by a claim of any issued patent in said 'CROWN patent rights' and 'CHAMPION patent rights', which claim or claims have not been held invalid by any Court of competent jurisdiction by a judgment which has become final."

of Thompson machines, by assuming the obligations of this agreement "in the place of Champion" it would still be liable to Crown for royalties on its machines, *if* those machines are covered by any of the claims of Crown's patents. Consequently, we must scrutinize the claims and their relationship to the Thompson machines.

Two principles must be applied to the scope, utility and operating effect of the Crown patents. One holds that the patents in question are to be construed in light of the prior art. Prior to trial, I held that since Crown's claim was one for the recovery of royalties under a specific license, Thompson would be precluded by cases such as *Sbicca-Del Mac, Inc.* v. *Milius Shoe Co.*, 145 F. 2d 389 (8th Cir. 1944) from raising an issue of patent invalidity by way of defense. Although Thompson may not contest the validity of the patents, it can contend that the prior art in this field requires that Crown's patent claims be given a construction which would eliminate the Thompson machines from their coverage.

The license itself states that it is to be construed under Texas law. The only case from that jurisdiction near this point is *Penn* v. *Garabed Gulbenkian*, 243 S. W. 2d 220 (Tex. Civ. App. 1951). There the Court, without addressing itself to the question of prior art, held that the worthlessness of a patent could be a defense to a claim for royalties. In my view, the better reasoned cases in other jurisdictions, hold that a defendant such as Thompson can look to prior art to prove non-coverage.

In *Casco Products Corp.* v. *Sinko Tool & Mfg. Co.*, 116 F. 2d 119 (7th Cir. 1940), *cert. denied* 312 U. S. 693 (1941), the Circuit held that while the defendant in a suit for specific performance of a license contract could not rely on prior art to invalidate a patent, it could prove that its own product was within the prior art and thus not an infringement of the licensed patent. In *Garland* v. *Remington*,

137 F. Supp. 622 (S. D. N. Y. 1956), the defendant in an action to recover royalties under a license agreement was allowed to resort to prior art to establish non-coverage. The Court concluded that ". . . prior art may be used, by a licensee, for the purpose of construing the claims of a patent, even though such evidence may reduce the patent to naught." (At p. 624.) *Krantz* v. *Van Dette*, 165 F. Supp. 776 (N. D. Ohio E. D. 1958), *aff'd. per curiam* 272 F. 2d 709 (6th Cir. 1959); *Baldwin Rubber Co.* v. *Paine & Williams Co.*, 107 F. 2d 350 (6th Cir. 1939), *cert. denied* 309 U. S. 676 (1950); *Kessel* v. *Vidrio Products Corp.*, 113 F. 2d 381 (7th Cir. 1940), *cert. denied* 311 U. S. 703 (1940) and *Plastic Contact Lens Co.* v. *Butterfield*, 366 F. 2d 338 (9th Cir. 1966), support this view.

The other principle to be applied is that the patent claims are to be construed in the light of the specifications, and that they are to be read together in order to ascertain the scope of the invention. *United States* v. *Adams*, 383 U. S. 39 at 49 (1966); *Westinghouse* v. *Boyden Power Brake Co.*, 170 U. S. 537 at 568 (1898); *Grant* v. *Koppl*, 99 F. 2d 106 at 110 (9th Cir. 1938); *Kemart Corp.* v. *Printing Arts Research Laboratories*, 201 F. 2d 624 at 629 (9th Cir. 1953); *Morpul, Inc.* v. *Mayo Knitting Mill, Inc.*, 265 N. C. 257, 143 S. E. 2d 707 (1965).

While I leave to my specific findings the precise detail of the prior art, here it should be mentioned that in 1955 and 1956, those engaged in plastic fabrication had molded a variety of articles from "prefoamed" or "preexpanded" polystyrene beads. These prefoamed beads were partially expanded before being charged into a molding cavity. Several of the early molders used a technique called "blow filling", to transport the extremely light weight prefoamed beads into the cavity. "Blow filling" included conveying prefoamed beads in a stream of air, introducing the combined bead and air stream into a molding cavity and ex-

hausting and conveying air from the cavity, usually through a loosely clamped mold parting line. Strangely enough, the technique was quite similar to the early foundry practice of blowing sand into core molding cavities. It can be safely said that by September, 1957, "blow filling" of molding cavities with prefoamed beads in fast cycle production machines was a well known technique and had been described in many trade publications.

Illustrative of the prior art is the molding machine placed in commercial production about August 15, 1955, by William L. Parsons at the Bachman Machine & Tool Co., a molding machine placed in commercial production on January 9, 1956, by Robinson Industries, Inc., another molding machine placed in commercial use in May, 1956, by Donald Stevens and still another apparatus placed in commercial use on August 16, 1956, by Victor Bird at LaDella Plastics. All of these machines used some type of a "blower" to inject the beads into the mold.

Claim 12 of Patent 2,951,260.

Plaintiff contends that this claim covers the defendant Thompson's machines. I disagree. My specific findings disclose that the Thompson machine does not use this patent's (1) peripheral outlet; or (2) its abutting surfaces; or (3) its cavity element open at both ends; or (4) its sources of air pressure differential. For other reasons stated in the specific findings, I find that this patent does not cover the Thompson machine.

Claims 1 and 3 of Patent 3,125,780.

Here, again, I must find against Crown's contentions. My specific findings demonstrate that the Thompson machine does not employ Crown's method of filling the molding cavity. The type of pressure applied to the inlet on the

respective machines is readily distinguishable, as shown by my specific findings. Moreover, the method of heating used by Crown under claim number 3 is not used by the Thompson machine.

Single Claim of Patent 3,162,705.

Clearly, the Thompson machine introduces air under pressure through a passage at the center of the cup cavity, while the specifications of the 705 Patent employs a vacuum to the circumference of the cup cavity. On this contention, we must keep in mind that the mere suggestion of a process not disclosed, is not a disclosure of a process. Consequently, Crown cannot use the suggestion of positive pressure to the inlet or gate opening to construe its claims. *Craftint Mfg. Co.* v. *Baker*, 94 F. 2d 369 (9th Cir. 1938). The exact distinctions between this patent and the Thompson machine are enumerated with exactness in my findings.

In general, I would find that the Crown patents under scrutiny should not be construed to cover the Thompson machines. Consequently, no royalties are due Crown on cups manufactured under the Thompson machine.

Thompson believes that Crown has used the patents in question, the licenses under them, and the suits based upon them, in such a way as to violate 15 U. S. C. § 2[3] and asks relief under 15 U. S. C. §§15[4] and 26.[5]

In support of its counterclaim, Thompson argues: (1) that Crown obtained the 705 and 780 Patents by fraud on the Patent Office, inasmuch as it had actual knowledge that the process defined in the 705 method had been publicly used by Thompson, more than one year prior to the time that it presented it to the Patent Office, and that it had actual knowledge that Claims 1 and 3 of the 780 Patent had been publicly sold and used more than one year prior to the time that it presented it to the Patent Office; (2) that Crown, without actual knowledge of the structures of competing concerns, attempted to coerce competitors into recognizing the validity of the 260 Patent; (3) that Crown attempted to coerce acceptance of licenses under the patents in question here by the use of threatening letters charging infringement, and by the use of unwarranted patent infringement actions; (4) that Crown did not bring the infringement actions for its sole benefit, but for the benefit

3. 15 U. S. C. § 2.

"Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a misdemeanor, ..."

4. 15 U. S. C. § 15.

"Any person who shall be injured in his business or property by reason of anything forbidden in the antitrust laws . . . shall recover threefold the damages by him sustained, and the cost of suit, including a reasonable attorney's fee."

5. 15 U. S. C. § 26.

"Any person, firm, corporation or association shall be entitled to sue for and have injunctive relief, . . . against threatened loss or damage by a violation of the antitrust laws . . . ."

of it and its licensees; (5) that Crown, knowing that one or more of its patent claims were invalid, entered into multiple patent licenses with concerns throughout the United States, whereby those concerns were enjoined from contesting the validity of the licensed patents; (6) that Crown based its royalty on the production of foamed cups, although it had no patent on such cups but merely on the machines which produced them; and (7) that Crown utilized a massive program of citing its patents and patent applications to the industry and demanding inspection of competitive developments of others, in order to be able to hand tailor its pending patent application so as to seem to cover the intervening and independent developments of its competitors.

While it is a general rule that a licensee cannot attack the validity of patents under which he is licensed, *Sola Elec. Co.* v. *Jefferson Co.*, 317 U. S. 173 (1942); *MacGregor* v. *Westinghouse Co.*, 329 U. S. 402 (1947); *Bowers Mfg. Co., Inc.* v. *All-Steel Equipment, Inc.*, 275 F. 2d 809 (9th Cir. 1960), I believe a licensee can challenge the validity of the patent where the owner is using the patent to unreasonably restrain competition in interstate commerce. *Nachman Spring-Filled Corp.* v. *Kay Mfg. Co.*, 139 F. 2d 731 (2d Cir. 1943); *Automatic Radio Co.* v. *Hazeltine*, 339 U. S. 827, 836 (1950).

At the outset, a trier of the facts on charges such as these, must recognize the delicate balance between the antitrust laws condemnation of unlawful attempts to monopolize, and the constitutionally guaranteed privilege of a patentee to enjoy a limited monopoly for a limited time.

Obviously, there is nothing inherently evil, nor unlawful, for a patentee to crown himself with the rewards of his invention by securing a royalty on the machine's output. To one with limited capital, this is probably the most logi-

cal and sensible approach. In any event, there is nothing unlawful or illegal about such conduct. The several patent infringement actions prosecuted by Crown are viewed with terror by Thompson. In a recent case, in which the record presented far more sinister conduct and actions by the patents owner, I was soundly criticized for condemning the owner. The case was reversed. *Plastic Contact Lens Co.* v. *Butterfield, supra.*

I must start with the premise that patents are *prima facie* valid.[6] If the patentee believes the patent is valid, he normally cannot be charged with bad faith or knowledge of invalidity. *Kemart Corp.* v. *Printing Arts Research Laboratories, supra.* The actions against Magi-Cup, Henolite, Sutherland, T. I. Plastics and Apollo were instituted after, what appears to be, a reasonable investigation into the details of the equipment used by the respective concerns. Clearly, a patentee is privileged to inquire of another as to the details of equipment used, in order to determine whether there is an infringement in fact. *American Needle Co.* v. *Schuessler Knitting Mills,* 150 USPQ 174 (N. D. Ill. E. D. 1966). Furthermore, there is nothing illegal about a provision in a license agreement whereby the licensee agrees not to contest the validity of the patent. *United States* v. *Harvey Steel Co.,* 196 U. S. 310 (1905). I find that Thompson has failed to carry its burden in establishing a lack of good faith on the part of Crown. For that matter, I feel that Crown, in good faith, felt that its patents were being infringed and that the controlling factor behind Crown's conduct was its own well being, rather than ill will or deplorable conduct. Even though none of its actions in the Courts were successful, that fact would not indicate that they were wholly groundless, coercive or unfair. *Plastic Contact Lens Co.* v. *Butterfield, supra,* p. 345.

6. 35 U. S. C. § 282.

To be emphasized is the fact that both plaintiff and the defendant, by order of the Court, presented findings in support of their respective theories. These findings are supported by citations to the record and were extensively employed by me in deciding the respective issues. The parties will observe that I have heavily relied on the findings and conclusions proposed by the defendant on the issues with reference to the scope, utility and operating effect of the patents owned by Crown. Likewise, I have heavily relied on the findings proposed by the plaintiff in denying relief to defendant under the antitrust laws. The use of the meticulous language of an expert is almost indispensable in the formulation of a proper finding in a patent case, which involves technical and highly complex problems, such as here presented. In such a case, the aid of the language of a specialist is not only suggested, but is highly desirable. *Vincent* v. *Suni-Citrus Products Co.*, 215 F. 2d 305, 310-11 (5th Cir. 1954); *Deyfrus* v. *Panama Canal Co.*, 298 F. 2d 733 (5th Cir. 1962). Even in non-patent cases, the Ninth Circuit approves the practice of a trial judge looking to findings prepared by counsel. *Molitor* v. *American President Lines, Ltd.*, 343 F. 2d 217 (9th Cir. 1965); *Glens Falls Ins. Co.* v. *Satrée*, 320 F. 2d 92 (9th Cir. 1963).

My findings are in favor of the defendant and against the plaintiff on plaintiff's claim and in favor of the plaintiff and against the defendant on the defendant's antitrust claim.

A decree shall be entered dismissing plaintiff's claim and defendant's counterclaim. Thompson is entitled to a declaratory judgment that the manufacture, use or sale of its machines by it, or its assigns, does not constitute an

infringement of Patents 2,951,260, 3,125,780 and 3,162,705, or any claim of these patents. The Court find it unnecessary to pass on the validity of such patents or the claims thereof. My formal findings are filed concurrently with this opinion.

Dated this 23rd day of May, 1967.

JOHN F. KILKENNY,
District Judge.

UNITED STATES DISTRICT COURT
District of Arizona.

CROWN MACHINE & TOOL CO.,
Plaintiff,
vs.
D & S INDUSTRIES, INC., (formerly Thompson Industries, Inc.),
Defendant.
} Civil No. 4942-PHX.

FINDINGS OF FACT AND CONCLUSIONS OF LAW.

At the trial of this cause, the plaintiff and defendant introduced evidence in support of their respective contentions, as outlined in the opinion of the Court heretofore made and filed in this cause. At the conclusion of the trial, the Court directed each party to submit proposed findings and conclusions. After an exhaustive study and analysis of the entire record, including the findings and conclusions proposed by plaintiff and defendant, I find that the great weight of substantial evidence supports the defendant's contentions on the plaintiff's claim and the plaintiff's contentions on the defendant's antitrust claim. In order to present a more readable and intelligent result, the findings of fact and conclusions of law are, in some instances, interwoven. Now based on the evidence in this cause, I make the following findings of fact and conclusions of law.

FINDINGS OF FACT.

JURISDICTION.

1.

Plaintiff, Crown Machine & Tool Co. (Crown), is a corporation of the state of Texas. Defendant, Thompson Industries, Inc., now by change of name D & S Industries, Inc. (Thompson), is a corporation of the state of Arizona.

2.

Plaintiff's complaint for royalties under an assigned patent license agreement is wholly between citizens of different states and the amount in controversy exceeds $10,000.00 exclusive of interest and costs.

3.

Defendant's first counterclaim arises out of the transaction which is the subject matter of the cause of action asserted by plaintiff and, further, presents an actual controversy which arises under the laws of the United States relating to declaratory judgments and to patents.

4.

The second counterclaim of defendant also arises out of the transaction which is the subject matter of the cause of action asserted by plaintiff and, further, arises under the antitrust laws of the United States.

HISTORICAL BACKGROUND.

5.

Crown is the owner of U. S. letters patent No. 2,951,260 issued on September 6, 1960 and of patent No. 3,125,780 and patent No. 3,162,705 issued on March 24, 1964 and December 22, 1964, respectively, after this lawsuit was filed. The first two patents, Nos, 2,951,260 and 3,125,780, relate to machines for molding articles from expandable polystyrene beads and the third patent, No. 3,162,705, relates to a method for molding articles from expandable polystyrene beads. Only claim 12 of patent 2,951,260; claims 1 and 3 of patent 3,125,780; and the single claim of patent 3,162,705 are here involved.

6.

The litigation does not involve any patent covering the articles, themselves, which are molded from the expandable polystyrene beads. Expandable polystyrene beads became generally available in this county in 1954 when the Koppers Company of Pittsburgh, Pennsylvania introduced the new product and subsequently tried to develop markets for its use. These beads are small plastic particles impregnated with an expanding agent. Upon heating within a closed mold the beads expand and fuse together into a solid lightweight plastic article which has the shape of the mold. By September of 1957, "blow filling" of molding cavities with prefoamed beads in fast cycle production machines was a well-known technique and had been described in the trade publications.

7.

About October 15, 1955, William L. Parsons at Brockman Machine & Tool Co. had placed in commercial produc-

tion a molding machine for making speaker enclosures from prefoamed beads. Parsons blew the beads into the molding cavity from a funnel-bottomed can. Application of a positive air pressure to the can conveyed the beads through a small central inlet into the top of the molding cavity. Conveying air escaped from the cavity to atmosphere through a loose full 360° mold parting line. After the molding cavity had been filled with beads, Parsons manually inserted a plug into the inlet and applied heat to form his speaker enclosure.

8.

As early as January 9, 1956 Robinson Industries, Inc. placed in commercial production a molding machine for making insulating enclosures for air conditioning units from prefoamed polystyrene beads. In that machine the prefoamed beads were conveyed into the molding cavity by use of a Whitlock hopper loader, which is a form of air aspirator. The conveying air and beads were blown into the mold cavity through an inlet at the top of the cavity element. The conveying air escapsed through the loose mold parting line around its entire periphery as well as through small steam vents. After the molding cavity had been filled, a plug was manually inserted into the inlet and the enclosure was formed by application of heat to the molding cavity.

9.

In May, 1956 Donald Stevens placed in commercial use a molding machine for making minnow buckets from prefoamed polystyrene beads. Stevens blew beads into his molding cavity with a home-made aspirator which applied a positive pressure to a central inlet at the top of the molding cavity. The conveying air escaped around a loose 360° parting line. After the mold had been filled with

beads, a plug was manually inserted into the inlet to the cavity element. Stevens then applied heat to the molding cavity to form his minnow bucket.

10.

By August 16, 1956 Victor Byrd at La Della Plastics placed in commercial use apparatus and a method for making float rings for minnow buckets from prefoamed polystyrene beads. Byrd also blew the beads into the molding cavity by application of a positive pressure to a small inlet opening in the cavity element. The conveying air escaped through the entire periphery of a loosely clamped parting line. When the mold was filled, Byrd manually inserted a plug into the mold inlet and heated the mold in an oven to form his float ring.

11.

On October 30, 1956 James M. Harrison and Robert E. Smucker, employees of Crown, filed in the U. S. Patent Office, application serial No. 619,259 which later matured into patent 3,162,705. The application disclosed in Figs. 1 and 2 of the drawings a first embodiment of a molding machine which defined a molding cavity between a porous core and a porous cavity element. This molding machine used a vacuum applied through the interior of the porous core to draw prefoamed beads into the molding cavity through a small port in the cavity element. This port was opened to admit beads and was closed, during the heating portion of the molding cycle, by a reciprocable solid plunger. The application described a second embodiment of a molding machine which had impervious core and cavity elements and also used vacuum applied through a porous stripper ring to draw beads into the molding cavity. It too had a small port in the cavity element to admit beads to

the molding cavity which was opened and closed by a reciprocable solid plunger. This second embodiment was not illustrated in the application drawings. The application, when filed, also suggested:

> "While we have stated that loading the cavity is done by vacuum, it might be more accurate to say that loading is done by the creation of a pressure differential. For example we might apply a positive pressure to the inlet or gate opening and blow the prefoamed beads into the mold. . . ."

The application, however, did not disclose any mechanism or describe any method for "applying a positive pressure to the inlet or gate opening" to blow prefoamed beads into the mold.

12.

The application, as filed, did not include any method claim which recited a step for "applying an air pressure differential" to the molding cavity as is now recited in the single method claim of the issued 3,162,705 patent. But, it did include a method claim which recited "applying a vacuum to draw" beads into the molding cavity (application claim 6). Application claim 11 for a molding machine, as filed, recited as one element "means for applying a pressure differential to the cavity to convey beads into the cavity", but, as shown in finding 15 that claim was amended on October 17, 1957 to recite "means for applying a vacuum to the cavity to draw the beads into the cavity."

13.

Plaintiff through testimony of several witnesses endeavored to show invention of the subject matter of application 619,259 before its October 30, 1956 filing date. The testimony was not corroborated by any relevant documents or physical evidence. This Court finds the evidence does

not establish any date of invention of that subject matter before the application filing date. The proofs do, however, tend to show that Crown at some time completed an experimental molding machine which Crown never placed in commercial production. Crown then commenced work on improved machines which it placed in commercial production in December of 1957 to make cups from prefoamed beads. These production machines used a slide valve to transfer beads from an offset hopper to the molding cavity. The cavity element was fully open at both ends. Standoff pins, during the fill part of the molding cycle, slightly separated the core from the cavity element to form a peripheral outlet at the cup lip through which a vacuum drew prefoamed beads into the molding cavity. The standoff pins then retracted to completely close the peripheral outlet while the beads were heated to form the cup.

14.

Crown patented this production machine on the application of James M. Harrison and Robert E. Smucker, employees of Crown, filed on October 1, 1957, in the U. S. Patent Office as serial No. 687,394 which later matured into patent 2,951,260. This application disclosed a molding machine which had a slide valve to transfer beads from an offset hopper to the molding cavity. The cavity element was fully open at both ends. Standoff pins, only during the fill part of the molding cycle, slightly separated the core from the cavity element to form a peripheral outlet at the cup lip through which a vacuum drew prefoamed beads into the molding cavity. The application nowhere used or defined the term "source of air pressure differential" which is now found in claim 12 of the issued 2,951,260 patent. The application nowhere disclosed or suggested anything about "blow filling" or the application of a positive pressure to an "inlet or gate opening" to blow heads into

the molding cavity. This Court finds the description, drawings and claims, as filed, contemplated only vacuum to draw beads into the molding cavity. The closest to patent claim 12 in the application, as filed, was application claim 7 for a molding machine which included as one element a "vacuum source for drawing beads" into the molding cavity and as another element "means for slightly separating the abutting surfaces . . . so that the vacuum source will be communicated to the cavity to draw beads into the cavity".

15.

Shortly after filing application serial No. 687,394 covering its new production machine, Crown on October 17, 1957 deliberately, and not by mistake or inadvertence, also limited its earlier application serial No. 619,259 to molding machines using only vacuum to fill the molding cavity. Crown deleted all references to "pressure differential" and to application of a "positive pressure to the inlet or gate opening". The language quoted in finding 11 was cancelled and Crown replaced it with two new paragraphs which emphasized the importance of using vacuum to draw beads into the molding cavity. At the same time Crown substituted in application claim 11 "means for applying a vacuum to the cavity to draw the beads into the cavity" for the earlier recitation of "means for applying a pressure differential to the cavity to convey beads into the cavity". By these changes the written description and drawings of this application, like application serial No. 687,394, only disclosed and the claims only defined the use of vacuum to draw beads into the molding cavity.

16.

On July 7, 1958 Crown granted an exclusive license to Champion Paper and Fiber Company, now by change of

name Champion Papers, Inc. (hereinafter called Champion), to use the subject matter disclosed in a group of pending patent applications, including the foregoing two applications serial Nos. 619,259 and 687,394. This license required Champion to purchase all of its cup molding machines from Crown and was not assignable by Champion without the written consent of Crown.

17.

On September 5, 1958 Crown sold to Champion the first of several of its production cup molding machines of the type described in application 687,394. These machines used a slide valve to transfer beads from an offset hopper to the molding cavity and had standoff pins that, during the filling part of the molding cycle, formed a peripheral outlet at the cup lip between the core and cavity elements through which a vacuum was applied to draw beads into the molding cavity.

18.

Champion commenced production of cups made from prefoamed polystyrene beads in the fall of 1958. The evidence shows that until March of 1960 Crown and Champion were the only producers of these foam cups in this country. Both manufactured all of their cups on slide-valve vacuum type machines, like that shown in the Crown 687,394 application, now patent 2,951,260.

19.

Starting in March of 1960, competitive foam cups having superior qualities began to appear on the market. The first were produced by Bridges Plastics Products, Inc. These cups were made on cup machines which loaded prefoamed beads into the molding cavity by a combination of vacuum and "blow" filling. Douglas Hutchings and others

developed these machines independently and without knowledge of Crown cup molding machines or of the Crown patents or patent applications here in suit.

20.

Sometime earlier in November of December, 1959, Darrow and Stanley Thompson who then operated Thompson Plastics, the predecessor of defendant, observed a Crown manufactured foam cup and determined that cups might be another product which Thompson Plastics could make from expandable polystyrene beads. Stanley Thompson then commenced design of machines for manufacturing cups. Thompson Plastics had its first cup machines in commercial production and sold cups by November 10, 1960. Defendant subsequently since August, 1962 manufactured and sold and has continued to use a large number of these machines (called Thompson machines) in its production of foam cups.

21.

The Thompson cup molding machines which were placed in production in 1960 are substantially the same, for purposes of this litigation, as those upon which Crown in its complaint seeks the payment of royalties. The Court finds that these machines were independently developed by Stanley Thompson without any knowledge of Crown cup molding machines or of the Crown patents or patent applications here in suit. The Thompson machine uses a "blow filling" technique to blow prefoamed beads into a cup molding cavity which is defined between impervious core and cavity elements. The core and cavity elements never completely close the molding cavity, but maintain a small permanent opening around the periphery of the cup lip which is open to atmosphere. The cavity element has a small port at the center of the bottom of the cup which is

opened and closed by a hollow reciprocable plunger. To fill the mold, a high velocity jet of air emitted from the center of this plunger entrains prefoamed beads from a supply pipe and blows the entrained beads and conveying air through the port into the molding cavity. The conveying air escapes from the molding cavity through the permanent opening around the periphery of the cup lip. The Thompson machine does not use vacuum to draw beads into the molding cavity and it does not apply a positive pressure to the mold inlet to convey beads into the molding cavity. It does not have a cavity element which is completely open at both ends nor does it use standoff pins to intermittently separate the core and cavity elements for filling.

22.

In October, 1960, James A. Young and the Sanigard Manufacturing Company also commenced production of foam cups using a cup machine which had been independently developed by Young without knowledge of the Crown cup machines or any of the Crown patents or applications here in suit. The Young cup machine also used a "blow filling" technique to load prefoamed beads into the molding cavity.

23.

In order to stay competitive with the foam cups produced by Thompson, Sanigard, Bridges and others, Champion obtained a modification of its license agreement with Crown in September of 1961 to enable it to buy cup machines from manufacturers other than Crown or to design and construct improved cup machines for itself. In the fall of 1961 Champion commenced design and construction of its own cup molding machine which it placed in commercial production in the fall of 1962. These Champion designed machines are called "Champion machines" in this litiga-

tion. They had standoff means to slightly separate the core and cavity elements during filling; they blew prefoamed beads into a molding cavity formed between the slightly separated mold parts; and they had air stripping means to blow formed cups off the core.

24.

On January 3, 1961 Crown amended application 619,259 and for the first time claimed (application claim 29) a method which included the step of "applying an air pressure differential" to convey beads into the molding cavity as is now recited in the claim of patent 3,162,705. The drawings and written description, however, continued to disclose only machines and a method which used vacuum to draw beads into the molding cavity. The application did not then include the language.

> "While we have stated that loading the cavity is done by vacuum, it might be more accurate to say that loading is done by the creation of a pressure differential. For example, we might apply a positive pressure to the inlet or gate opening and blow the prefoamed beads into the mold."

which is now found in the issued patent 3,162,705. Not until August of 1964 did Crown add these two sentences, that had been cancelled on October 17, 1957.

25.

On April 19, 1962 James M. Harrison and Robert E. Smucker, as a division of their earlier application serial No. 619,259, filed application serial No. 191,662 which later matured into patent 3,125,780. The application drawings were identical to those of the earlier parent application and disclosed a first embodiment of a molding machine which defined a molding cavity between a porous core and

a porous cavity element. This molding machine used a vacuum applied through the interior of the porous core to draw prefoamed beads into the molding cavity through a small port in the cavity element. This port was opened to admit beads and was closed during the heating portion of the molding cycle by a reciprocable solid plunger. The application described a second embodiment of a molding machine which had impervious core and cavity elements and also used vacuum applied through a porous stripper ring to draw beads into the molding cavity. It too had a small port in the cavity element to admit beads to the molding cavity which was opened and closed by a reciprocable solid plunger. This second embodiment with a porous stripper ring was not illustrated in the application drawings. The application, as filed, nowhere disclosed or suggested anything about "blow filling" or the application of "a positive pressure to an inlet or gate opening." Application claim 3 was the closest to issued patent claims 1 and 3 now in suit. It included all elements of patent claim 1 except

> "means for creating an air pressure differential through the cavity to convey the beads from the supply passage to the top edge of the cup as defined by the cavity, including means for applying a positive air pressure to the supply passage for blowing the prefoamed beads into the mold."

26.

On January 3, 1963 representatives of Crown inspected Thompson cup molding machine and as a consequence of this inspection Crown on January 14, 1963 amended application 191,662 by adding for the first time the two claim elements

> "means for creating an air pressure differential through the cavity to convey the beads from the supply

> passage to the top edge of the cup as defined by the cavity, including means for applying a positive air pressure to the supply passage for blowing the prefoamed beads into the mold. . . . ."

which now appear in issued patent claim 1. Crown at the same time added

> "While we have stated that loading the cavity is done by vacuum, it might be more accurate to say that loading is done by the creation of a pressure differential. For example, we might apply a positive pressure to the inlet or gate opening and blow the prefoamed beads into the mold. . . ."

to the written description. Not until June 6, 1963 did Crown first describe and show in the drawings the simple air pipe, a porous stripper ring and a vacuum source applied to that porous stripper ring which now are included in the 3,125,780 patent.

27.

Having lost almost $1,500,000.00 in its foam cup operations through February of 1963, Champion decided to terminate that portion of its business. It started negotiations with Crown to further modify the Crown-Champion license agreement so that with a sale of its cup molding business Champion could also transfer a right to operate its cup molding machines. These negotiations resulted in a revised Crown-Champion license agreement dated August 2, 1963 which forms the basis for plaintiff's present claim for royalties. On the same date, Champion sold to Crown part of its cup molding business including what remained of the slide valve vacuum type cup molding machines which it had purchased from Crown.

28.

The revised license agreement granted a non-exclusive license to Champion under a group of Crown patents and patent applications, including patent 2,951,260 and applications serial nos. 619,259 and 191,662 "to use machines for the manufacture of cups". Significantly, the agreement granted no license to sell cup machines. The license provided for payment to Crown of a royalty of 2% on the net sales of cups and containers sold by Champion which were made by any machine or method covered by an issued patent claim. Champion conceded that all of the cup machines which it had purchased from Crown and which it had developed itself were "within one or more of the claims" of patent 2,951,260. Champion did not, however, concede that any other machines were within those claims. The license was not generally assignable, but did provide that Champion could assign its license with Crown upon the transfer of "at least a substantial portion of its facilities" for the manufacture and sale of foam cups.

29.

On August 30, 1963 to obtain manufacturing facilities in the East, Thompson purchased the remaining assets of the Champion foam cup business, including fifteen "Champion" cup machines which it added to the large number of Thompson machines it then had in operation elsewhere. As part of the contract of sale Thompson was "to receive an assignment of a License Agreement enabling it to operate such assets" and the revised Crown-Champion license agreement of August 2, 1963 was attached as an exhibit to the contract of sale. As of the date of sale Champion had remaining only its own Champion designed cup machines. Champion did not have and never had owned or operated a "Thompson" cup machine. The purpose of the

assignment from Champion of the Crown-Champion license agreement, as expressed in the contract of sale, was to enable Thompson to operate the Champion machines which it had acquired.

30.

As part of the sale on September 9, 1963, Thompson and Champion entered into the "Assignment" by virtue of which Crown here seeks royalties from Thompson on cup production from all of its Thompson machines. By this "Assignment" Champion transferred to Thompson all of its right, title and interest in the August 2, 1963 Crown-Champion license and Thompson assumed and agreed to be bound by the terms and conditions of the agreement "in the place of Champion".

31.

Although Crown in July of 1962 had charged Thompson, along with others in the foam cup industry, with infringement of the Crown 2,951,260 patent, Thompson has continuously denied that its Thompson machines infringe any Crown patents. Thompson was advised by patent counsel that it needed no license from Crown to operate Thompson machines. The evidence shows that Thompson at no time desired, negotiated or requested a license from Crown under its patents in order to manufacture, use or sell its Thompson cup machines. These facts do not present a situation where, following a charge of patent infringement, the accused infringer requests and obtains a license under the patent which he is accused of infringing. There is no evidence that Thompson ever sought a license from Crown to operate its Thompson cup molding machines. Indeed, Crown admitted at the time that Thompson "is gaining confidence in their defense of our potential action against them."

32.

Plaintiff contends that the assignment of rights and assumption of the obligations of Champion under the Crown-Champion license agreement has given defendant a license under the Crown patents to operate its Thompson machines and that it must pay to Crown royalties on the production of its Thompson cup machines, as well as on the production of its Champion machines. Defendant, on the other hand, admits it owes royalties on Champion machine cup production, but contends that it has no license to operate Thompson machines; that even if it has a license, the Thompson machines are not "covered by a claim" of any issued Crown patent; and that, as a consequence, it must pay royalties only on the production of Champion machines. Defendant tendered those royalties, which Crown refused. Defendant has never tendered royalties on its Thompson machine production.

CONSTRUCTION OF "ASSIGNMENT".

33.

The September 9, 1963 "Assignment" is somewhat ambiguous. The Court finds from all of the evidence that the rights assigned by Champion and the obligation to pay royalties, which was assumed by Thompson, relate only to the transferred "Champion" machines and not to "Thompson" cup machines. By its terms the Crown-Champion agreement did not grant a license to sell cup machines, but only a license to build and to operate them. By its terms the Crown-Champion license was assignable only with a transfer of all cup machines then owned by Champion. At the time of transfer, Champion had no Thompson machines. It had remaining only its Champion machines. Champion and Thompson both intended the "Assignment", as part of the sale of Champion assets,

to be a transfer of the right to operate Champion machines and nothing more. On and after August 30, 1963, Champion had no rights to operate and no obligation to pay royalties on any machines except its Champion machines, and hence could transfer none. The corresponding assumption by Thompson to pay royalties "in the place of Champion" related only to Champion machines because they were all upon which Champion then had any obligation to pay royalties.

34.

The Crown-Champion license by the express terms of paragraph 6 provides that royalties are payable only on cups which are made "on any machine or by any method covered by a claim of any issued patent." The parties disagree upon what the claims in suit do cover. This dispute centers upon the method and means for introducing prefoamed beads into the molding cavity.

35.

The 2,951,260 patent disclosure, its prosecution history and prior art in existence more than one year before October 1, 1957, require that claim 12 must be limited to molding apparatus which has (1) a cavity element completely "open at both ends", (2) a "source of air pressure differential" which is a vacuum applied through an intermittently formed "peripheral outlet" to draw beads into the molding cavity, and (3) "abutting surfaces" which are moved apart by (4) "power means" to form the "peripheral outlet" through which the vacuum communicates with the molding cavity during a fill portion of the molding cycle and which are then closed in abutment by "power means" during the balance of the molding cycle.

36.

Patent 2,951,260 discloses only a molding cavity with a "completely open top" and the patentees state this feature is one object of the patented machine. The same patentees previously, having built the machine shown in application 619,259 which had a cavity element closed at one end and except for a small central inlet port, proclaimed in the 2,951,260 patent that the completely open top molding cavity was the first in which it had been "possible to successfully fill and heat the thin walls of the mold." The molding machine of this patent was purposely designed with a completely open top molding cavity because of deficiencies in expandable beads then on the market.

37.

The term "source of air pressure differential" appears nowhere in patent 2,951,260 except in claim 12. Its meaning and scope, therefore, are determined from the specification and drawings of the patent. They disclose only a vacuum applied through a peripheral outlet at the cup lip to draw beads into the mold. The patentees state that "use of vacuum" for filling the mold is an object of the patented machine and throughout the patent they emphasize the importance of vacuum filling. Application claim 19, which, as later amended, issued as patent claim 12, was represented by Crown to be "drawn along the lines of allowed claim 7". Application claim 7 recited "a vacuum source for drawing beads" into the mold. Thus, "source of air pressure differential" can only be construed as a source of vacuum.

38.

Similarly, patent 2,951,260 discloses "abutting surfaces" at the cup lip which intermittently open to communicate

the vacuum to the molding cavity and then close to complete the molding cavity wall. The disclosed "peripheral outlet" is in being only when the standoff pins open the abutting surfaces as the slide valve moves over the open top molding cavity. The disclosed "power means" includes the essential standoff pins which open and close the peripheral outlet in timed relation to movement of the slide valve. Original application claim 7 defined the standoff pins as one element of the machine. Following its allowance, Crown represented to the Patent Office that new application claim 19, which matured into patent claim 12, was "drawn along the lines of allowed claim 7". Like claim 7, claim 19 defined in more general terms the standoff pins as power means for forming the peripheral outlet. Later, Crown omitted "power means" to create the peripheral outlet from claim 19 but the Patent Office refused to allow the claim for the stated reason that it would then include a continuously open peripheral outlet. The Patent Office required the patentees to concisely define the relationship between the slide valve, power means to operate the slide valve and the peripheral outlet. In response, Crown amended the "power means" element to the form of the issued claim. As a consequence, this claim must be construed to include an intermittently opened and not a continuously open "peripheral outlet" and "power means" to open and close it.

39.

The Thompson machine, on the other hand, does not have a cavity element completely "open at both ends", but, has a cavity element which is closed at one end except for a small central inlet port. These two cavity elements are not equivalent as shown by the patentees' admission that the open top cavity was an object of the patented mechanism and was the first "to successfully fill and heat the thin walls of the mold." Smucker patent 2,828,509

discloses and fully justifies the closed-end cavity element used in the Thompson machine.

40.

The Thompson machine does not use a vacuum applied through an intermittenly open "peripheral outlet" at the cup lip to draw beads into the molding cavity, but, rather, it uses a "blow filling" means to aspirate beads in an air stream through the small inlet port at the opposite end of the molding cavity and exhaust the conveying air to atmosphere through the continuously open peripheral outlet at the cup lip. The Court finds that the Thompson "blow filling" means is fully justified by the public use of similar air aspiration molding devices by Parsons, Robinson, Stevens and La Della Plastics more than one year before October 1, 1957.

41.

The Thompson machine does not have "abutting surfaces" which "power means" move apart to form a "peripheral outlet" and to communicate the vacuum with the molding cavity during fill and which "power means" close to complete the molding cavity when the slide valve is closed. Instead, Thompson machines have a continuously open peripheral outlet through which bead conveying air under positive pressure is ejected to atmosphere; and Thompson employs abutting surfaces which are continually in abutment regardless of whether the plunger valve is open or closed. The loosely clamped or cracked parting line in the Parsons, Stevens, Robinson and La Della devices was an intermittently open peripheral outlet used more than one year before October 1, 1957. The continuously open peripheral outlet of the Thompson machine is fully justified by French patent 1,149,898. There is no evidence that a continuously open peripheral outlet was

known or used as an equivalent for a peripheral outlet intermittently opened by standoff pins.

42.

The Thompson machine does not have any element corresponding to or equivalent to the "power means" which operate standoff pins in the patent structure to open and close the peripheral outlet in timed relation to the slide valve and which disengage the abutting surfaces during filling of the molding cavity.

43.

In addition to the elements specifically mentioned in the previous three findings, each and every other element of claim 12 of patent 2,951,260, which finds response in the Thompson machine, is fully justified by prior art in public use or described in a written publication more than one year before October 1, 1967.

44.

The Thompson machine, therefore, does not employ the combination of mechanical elements, or their equivalents, which are defined by claim 12 of patent 2,951,260 as it must be construed. Each of the claim elements which the Thompson machine does use is clearly shown in the prior art in evidence.

45.

The 3,162,705 patent disclosure, its prosecution history, and the prior art require that its claim must be limited to a method (1) which employs an "air pressure differential" which is a vacuum and (2) which particularly applies the vacuum through the 360° periphery of the cup cavity, such as through the interior of the porous core or

through a porous stripper ring extending around the full periphery of the cup lip.

46.

The method now defined in the claim of patent 3,162,705 was not claimed in application 619,259 as filed on October 30, 1956. That subject matter was first claimed on January 3, 1961, after the Thompson machine had been placed in commercial use.

47.

Patent 3,162,705 discloses in the specification and drawings one molding method in which a vacuum is applied to the interior of a porous core element to draw beads into the molding cavity. The specification also describes another method in which a vacuum is applied to a porous stripper ring extending round the full periphery of the cup lip. Both methods apply vacuum through the full 360° circumferential extent of the cup molding cavity and not at a single point on the axis of the cavity. Although the specification, as filed, stated

> "While we have stated that loading the cavity is done by vacuum, it might be more accurate to say that loading is done by the creation of a pressure differential. For example, we might apply a positive pressure to the inlet or gate opening and blow the prefoamed beads into the mold"

no mechanism or way of applying a positive pressure is disclosed in the patent. Crown cancelled the quoted sentences on October 17, 1957 and replaced them with a full paragraph which emphasized the importance of using vacuum to load the molding cavity.

48.

Application 619,259, as filed, claimed only a method which included the step of "applying a vacuum to draw the prefoamed beads into the cavity" (application claim 6). On October 17, 1957 Crown added application claim 19 which defined a method including the step of "applying a vacuum to draw a predetermined quantity of the pressed prefoamed beads into a mold . . .". Claims 6 and 19 were cancelled and subsequently on January 3, 1961 Crown added application claims 29 and 30 which for the first time recited the "air pressure differential" feature of the single issued patent claim. The Patent Office rejected both new claims and for purposes of appeal on April 12, 1961 Crown added application claim 31 which is substantially like the method claim of the issued patent. Crown characterized this claim as calling for "an air pressure differential, applied at the top of the cup and extending through the full 360° circumference of the cup". Following an adverse ruling by the Board of Appeals, upon rehearing Crown obtained allowance of this claim. The Board of Appeals construed the filling step of the claim as involving the "specific mode of utilization of vacuum (air pressure differential), 'through the full 360 degree circumferential extent of the cup cavity, and in a direction from the top of the cup [mold cavity] to the bottom . . .'" At the time of allowance the only disclosure of mold filling in the patent specification and drawing was by application of a vacuum either through a porous core element or through a porous stripper ring at the cup lip. This Court finds that the Board of Appeals in allowing this claim, construed the term "air pressure differential", which at the time appeared nowhere else in the application, as a vacuum and as a vacuum which was particularly applied "through the full 360 degree circumferential extent of the cup cav-

ity'' in order to distinguish it over Jeffery patent Re. 20,460 upon which the same Board had previously rejected that claim.

49.

The reinsertion in August, 1964 of two sentences previously cancelled from the application on October 17, 1959, namely

> ''While we have stated that loading the cavity is done by vacuum, it might be more accurate to say that loading is done by the creation of a pressure differential. For example, we might apply a positive pressure to the inlet or gate opening and blow the prefoamed beads into the mold.''

does not affect this construction because Crown represented to the Patent Office that the addition was merely ''editorial''. This representation, made long after this suit had been filed and after the Board of Appeals had construed the claim in a particular way, estops Crown now to urge that these two sentences support a claim construction which defines anything but a vacuum. This Court specifically finds that these two sentences in the context of the remaining patent disclosure are, at best, an invitation to experiment. They are insufficient to support a construction of the step of ''applying an air pressure differential, through the full 360° circumferential extent of the cup cavity . . .'' in the 3,162,705 patent claim which would cover the Thompson ''blow filling'' method. The expert testimony shows that the terms ''air pressure differential'' and ''positive pressure to the inlet or gate opening'' have no significance in the Thompson method.

50.

The Thompson machine, on the other hand, does not use a vacuum to draw beads into the molding cavity. Instead,

the Thompson fill mechanism aspirates the prefoamed beads by a high velocity jet of air and blows them into the molding cavity. This Court finds that it need not resolve the conflict in expert testimony as to whether the one is the equivalent of the other because Parsons, more than one year before October 30, 1956 aspirated prefoamed beads and blew them into his molding cavity. Parsons fully justifies the Thompson filling method.

51.

The Thompson machine also does not apply its conveying air "through" the full 360° circumferential extent of the cup cavity. Instead Thompson applies the conveying air and beads through a small inlet port at the center of the top (bottom of the cup) or axis of the molding cavity. This aspect of the Thompson method also finds full response in the Parsons molding method and is justified by it.

52.

The evidence without dispute shows that as of October 30, 1956, a "blow filling" step was not known or used as an equivalent to a vacuum filling step in either of the two forms disclosed in the 3,162,705 patent. This Court specifically finds that the "blow filling" step of the Thompson machine does not operate in substantially the same way to fill molding cavities as do the two forms of vacuum filling disclosed in the 3,162,705 patent. The Thompson "blow filling" method depends upon the kinetic energy of a high velocity air jet to entrain and impel beads into the molding cavity. Test data in evidence demonstrates that the pressure at the "mold inlet or gate opening" is negative or a vacuum, and the pressure at the mold outlet is atmospheric. The vacuum filling methods disclosed in the 3,162,705 patent depend upon a differential between the pressure at the

mold inlet and a lower pressure at the far end or the interior wall of the molding cavity to draw beads into it. The pressure at the mold "inlet or gate opening" is atmospheric and the pressure at the mold outlet is negative or a vacuum. The pressure relation of the one method is the reverse of the other.

53.

The Thompson machine does not use the critical method step defined in the claim of patent 3,162,705 or its equivalent. Thompson uses a "blow filling" method which was not even known in its specific form and was fully justified in its generic form by the prior art in evidence.

54.

The molding machine now defined in claims 1 and 3 of patent 3,125,780 also was not claimed in application 619,259 as filed on October 30, 1956, nor was it claimed in the divisional application 191,662 filed April 19, 1962. The claimed subject matter was first presented to the Patent Office on January 14, 1963 in application claim 5, more than one year after the Thompson machine had been placed in public use and after plaintiff had inspected a Thompson machine in El Paso, Texas.

55.

Patent claim 3 depends upon patent claim 1. It recites impervious core and cavity elements in addition to the structure defined in patent claim 1. The invention, if any, in patent claim 1 and, hence, in dependent patent claim 3, resides in the two elements. These two elements were presented for the first time on January 14, 1963 in application claim 5 which was dependent upon earlier application claim 3 that had all of the other issued claim language.

Application claim 3 was rejected by the Patent Office "as unpatentable" over Kelly patent 2,773,284 which disclosed all of the issued claim elements except the above two elements.

56.

The 3,125,780 patent disclosure, its prosecution history and the prior art require that the two critical elements of claims 1 and 3 must be construed as (1) means for creating an air pressure differential which include means for drawing a vacuum on the cup molding cavity through a porous stripper ring or through a porous core and (2) means for applying a positive pressure at the small inlet port in the cavity element through which the beads are drawn.

57.

The only "means for creating an air pressure differential" disclosed in application 619,259, from which patent 3,125,780 derived, were a vacuum applied to the interior of a porous core element as shown in the drawings and specification and a vacuum applied through a porous stripper ring at the cup lip as described in the specification. The specification did suggest that

> "While we have stated that loading the cavity is done by vacuum, it might be more accurate to say that loading is done by the creation of a pressure differential. For example, we might apply a positive pressure to the inlet or gate opening and blow the prefoamed beads into the mold. . . ."

The drawings and specification disclosed no structure by which such a positive pressure could be applied to the "mold inlet or gate opening". On October 17, 1957 Crown cancelled the quoted language and at the same time modified application claim 11 which had recited "means for applying a pressure differential" to read "means for apply-

ing a vacuum''. Crown subsequently on April 19, 1962 filed divisional application 191,662 also without the quoted language in the specification. Its drawings and specification, as filed, were identical to the drawings and specification in application 619,259 as it existed on April 19, 1962.

58.

The only claim in the divisional application, as filed, which had any reference to any form of air pressure differential (application claim 4) defined the porous stripper ring embodiment in the following elements:

> ''means for applying an air pressure differential through the cavity to load the cavity with foamable material, the air being exhausted through the pores of the stripper ring so that the foamable material flows from the small end of the cavity toward the stripper ring at the large end''.

59.

Then, after inspection of Thompson machines, Crown on January 14, 1963 added the paragraph concerning positive pressure at the ''inlet or gate opening'' which it had previously cancelled from the parent application in 1957 and added the two critical claim elements in application claim 5. Crown represented to the Patent Office that this paragraph had been inadvertently omitted from the divisional application when prepared. But this Court finds that the paragraph had no continuity in any application—that paragraph had more than five years earlier been cancelled from the parent application.

60.

The Patent Office found the specification not to be sufficient to support the new elements in application claim 5 because it did not illustrate every feature of the invention

defined in the new claims. As a consequence on June 6, 1963 Crown for the first time added the simple air pipe 94, vacuum source 88, passage 90, channel 92 and indicated the porous nature of the stripper ring on the patent drawings. Crown also added to the specification appropriate language describing these additions. This Court confirms the Patent Office and finds that the embodiment described in the divisional application which draws a vacuum through the porous core does not support patent claims 1 and 3 of patent 3,125,780. The other embodiment described in the application which has a vacuum applied through a porous stripper ring also does not fully support the critical two elements of patent claims 1 and 3. Neither has means for applying a positive air pressure. Only by the addition of the simple air pipe to the drawings and its accompanying description in the specification is there sufficient disclosure in this application to support patent claims 1 and 3. In effect the first disclosure of the two newly claimed elements also was first fully presented to the Patent Office more than one year after the Thompson machine had been placed in public use.

61.

Construing the critical means elements in view of this disclosure, they must include a simple air pipe or other means which applies a positive pressure to the "inlet or gate opening" and a vacuum drawn through a porous stripper ring or core, or their equivalent.

62.

The Thompson machine does not draw a vacuum through a porous stripper ring or porous core. Thompson does not use vacuum or a simple air pipe. Instead, the Thompson fill mechanism is an air aspirator including a hollow reciprocable plunger which emits a high velocity air jet from

a central air passage. No evidence shows that this structure was even known until its development by Thompson. The expert testimony, particularly the undisputed tests of defendant's expert, establish that there is a negative pressure at what would be the "inlet or gate opening" of the Thompson machine and, not a positive pressure. Thus, the Thompson aspirator fill mechanism does not use substantially the same means or operate in substantially the same way to fill molding cavities as does the combination of vacuum and simple air pipe belatedly disclosed in the 3,125,780 patent. The Thompson aspirator was not a known equivalent of the patented means.

63.

The Thompson aspirator was placed in public use by Thompson more than one year before full disclosure to the Patent Office of the mechanism now defined in claims 1 and 3 of patent 3,125,780.

64.

All of the elements of the Thompson machine find justification in the prior art in evidence. Kelly patent 2,773,284 and Smucker patent 2,828,509 teach the general structure and the Parsons, Robinson, Stevens and La Della public use devices justify the Thompson air aspirator fill mechanism.

65.

The Thompson machine, therefore, does not use the critical two elements of claims 1 and 3 of patent 3,125,780, or their equivalent. The machine elements which the Thompson machine does use are fully justified by the prior art in evidence.

ANTITRUST COUNTERCLAIM.

66.

Continuously, since August, 1962, Thompson and Crown have been competitors in the manufacture and sale of machines for molding foam cups and since August 2, 1963 they have been competitors in the manufacture and sale of foam cups made from expandable polystyrene beads.

67.

Crown has not sought to coerce other foam cup manufacturers into accepting licenses under the '780, '705 or '260 Patents, or any of them, by the use of notices of infringement and/or unwarranted infringement suits.

68.

Crown did not institute suit on the '780, '705 and '260 Patents, or any of them, until after it had actual knowledge of the structure that the accused infringer was using.

69.

Crown has not notified any competitors of infringement without reasonable knowledge of the machine structure that the competitor was using.

70.

Crown has proceeded in good faith in asserting its patents in various infringement suits and has no knowledge nor can it be charged with knowledge of invalidity of the '780, '705 and '260 Patents, or any of them, if they are invalid.

CONCLUSIONS OF LAW.

Based on the foregoing findings of fact, the Court enters herein its conclusions of law as follows:

- License Controversy.

1.

The written assignment of rights by Champion and assumption of obligations by Thompson is ambiguous and, therefore, collateral evidence may be considered to determine the true intentions of the signatory parties and a proper construction of the written document.

2.

Properly construed the "Assignment" could not and did not transfer a license to Thompson to manufacture or use its independently developed "Thompson" cup molding machines and Thompson did not assume any obligation to pay royalties on them. The "Assignment" relates only to the transferred "Champion" machines.

3.

Thompson is not a licensee of Crown with respect to its manufacture or use of the "Thompson" cup machines. It is a licensee only with respect to its use of the "Champion cup machines".

4.

Defendant, even if it were a licensee by assignment, is not estopped to show that its Thompson machines and the method used by them are not covered by any properly construed claims of the Crown patents.

5.

Each patent claim must be construed in the light of the patent specification and both should be read with a view to ascertaining the actual scope of the patented invention. The claims can be no more broad than the inventions actually made.

6.

The fact that claims 13 of patent 2,951,260, which is dependent upon claim 12 in suit, recites that the "peripheral outlet" includes "means for separating the molding parts when the core is initially inserted in the cavity element" cannot require a construction of the "peripheral outlet" element of claim 12 which is broad enough to include the permanently open outlet of the Thompson machine. No matter what claim language is used, the doctrine of claim differentiation cannot broaden claim 12 to cover more than the actual invention made by the patentees.

7.

All claims in suit are combination claims and U. S. Code, Title 35, Sec. 112 limits those elements in the claims which are expressed as a "means or step for performing a specified function", to the corresponding structure or acts which are disclosed in the respective patent specification or equivalents of those structures or acts.

8.

To be an equivalent, one structure or method must obtain substantially the same result as the patented structure or method by operating in substantially the same way or by using substantially the same means to obtain the result. The equivalence or the interchangeability of the one for the other must be known.

9.

Where the patentees have obtained issuance of a patent claim only by accepting limitations imposed by the Patent Office, they are estopped to construe that claim in a manner more broad than the scope placed upon it in the Patent Office.

10.

The Crown patent claims may not be so broadly construed that they cover prior art. Defendant, even if it were a licensee by assignment, is not estopped to show that its Thompson machines are fully justified by prior art devices and methods in public use, on sale, or described in printed publications more than one year before the filing date of plaintiff's applications for patent or by prior art devices and methods known or used by others in this country or patented or described in printed publications before the date of plaintiff's invention of the patented subject matter. Included in such prior art are devices and methods disclosed in patent applications filed prior to the invention of the plaintiff's patented subject matter.

11.

Applying these principles, this Court concludes as a matter of law that claim 12 of patent 2,951,260 must be limited to molding apparatus which has (1) a cavity element completely open at both ends, (2) a source of air pressure differential which is a vacuum applied through an intermittently formed peripheral outlet to draw beads into the molding cavity and (3) abutting surfaces which are moved apart by (4) power means to form the peripheral outlet through which the vacuum communicates with the molding cavity during a fill portion of the molding cycle and which are then closed in abutment by power means

during the balance of the molding cycle; that the single claim of patent 3,162,705 must be limited to a method (1) which employs an air pressure differential which is a vacuum and (2) which particularly applies the vacuum through the 360° periphery of the cup cavity, such as through the interior of a porous core or through a porous stripper ring extending around the full periphery of the cup lip; and that claims 1 and 3 of patent 3,125,780 must be construed to include (1) means for creating an air pressure differential which has means for drawing a vacuum on the cup molding cavity through a porous stripper ring or through a porous core and (2) means for applying a positive pressure at the small inlet port in the cavity element through which the beads are drawn.

12.

As a matter of law this Court concludes that the Thompson "blow filled" molding machine is not the equivalent of the molding machines defined in claim 12 of patent 2,951,260 or in claims 1 or 3 of patent 3,125,780; and that the Thompson "blow filling" method is not the equivalent of the vacuum filling method defined in the claim of patent 3,162,705.

13.

Properly construed, none of claim 12 of patent 2,951,260; claims 1 and 3 of patent 3,125,780; or the claim of patent 3,162,705 covers defendant's Thompson machine or the method used in operation of defendant's Thompson machine.

14.

No royalties are due or payable to Crown by defendant on account of production of foam cups on Thompson machines or on account of its manufacture or use of Thompson machines.

ANTITRUST COUNTERCLAIM.

15.

Crown has not violated the antitrust laws of the United States in its obtaining of the licensed patents.

16.

Crown has not violated the antitrust laws of the United States in its licensing of any or all of the licensed patents.

17.

Crown has not violated the antitrust laws of the United States in the prosecution of the applications in the United States Patent Office which matured into the licensed patents.

18.

Crown has not violated the antitrust laws of the United States in its litigation brought in several Federal Courts for the enforcement of any of the licensed patents.

A decree shall be entered in conformity with my opinion and these findings and conclusions.

Dated this 23rd day of May, 1967.

JOHN F. KILKENNY,
District Judge.

APPENDIX C.

(Stamp) Original Filed Sep 26 1967 Clerk, U. S. Dist. Court San Francisco.

UNITED STATES DISTRICT COURT
Northern District of California.

CROWN MACHINE & TOOL CO., a corporation, *Plaintiff*,
vs.
KVP-SUTHERLAND PAPER COMPANY, a corporation, *Defendant*.
No. 42224

MEMORANDUM OF DECISION.

SWEIGERT, *J.*

This is a patent infringement action brought by plaintiff Crown Machine & Tool Co., (hereinafter "Crown") against defendant KVP-Sutherland Co., (hereinafter "Sutherland"). Defendant Sutherland has counterclaimed for violation of the antitrust laws. Jurisdiction of the patent action is founded upon 62 Stat. 931 (1948), 28 U. S. C. § 1338 (1964).

The case is presently before the Court after a trial of the issues and extensive post-trial briefing. The Court has also had the benefit of its extensive and fairly well de-

tailed notes made during the trial of the case. The extent of the transcript, the exhibits, the briefs and these trial notes account for the length of the submission period.

Crown is the owner of U. S. Patent Nos. 2,951,260 (hereinafter '260), 3,125,780 (hereinafter '780) and 3,162,705 (hereinafter '705) relating to apparatus and method for making plastic containers from expandable polystyrene beads. The complaint charges that defendant Sutherland's use of so-called "Thompson Machines" to make cups from expandable polystyrene beads infringes its '260, '780 and '705 patents.

The claims in issue herein are the single claim of the '705 patent, claims 1 and 3 of the '780 patent, and claims 12 of the '260 patent.

The issues in the case are: (1) Is the sole claim of Crown's '705 patent valid in law?; (2) Are claims 1 and 3 of Crown's '780 patent valid in law?; (3) Is claim 12 of Crown's '260 patent valid in law?; (4) Are any of the foregoing claims infringed by the Thompson Machine?, and (5) Has Crown violated the antitrust laws of the United States in its obtaining of and/or its use of the '780, '705 and '260 patents?

In order to adequately deal with these issues it is first necessary that the background and history of the patents and polystyrene foam cup art be covered.

I. Background and History of the Patents and Polystyrene Foam Cup Art.

Expandable polystyrene is a lightweight thermoplastic material impregnated with a "foaming" or "blowing" agent which is activated by heat. This material is marketed in the form of tiny beads (resembling sugar) and when heated the foaming or blowing agent causes the beads to

expand uniformly in all directions to as much as thirty times their original size. Upon heating within a closed mold the beads expand and fuse together into a so-called "foam" in the shape of the mold. Such foams have the properties of toughness, high strength-to-weight ratio, low thermal conductivity and low water absorption. Hot drink cups, ice chests, buckets and Christmas decorations are just a few of the many items made of this material.

Badische Anilin & Soda-Fabrik AG, a German company, originated expandable polystyrene in the early nineteen fifties and is the owner of a number of United States patents on its process of manufacture and on the production of articles (foams) therefrom. (See Plt. Ex. No. 62.) None of these patents, however, are the subject matter of this infringement suit.

On March 1, 1954, the Koppers Co., Inc., made the first public announcement in the United States of "expandable polystyrene". From that date until the spring of 1960 Koppers marketed an expandable polystyrene bead designated F-40 which had a relatively wide bead size distribution range, to wit: the beads varied in "average diameter from .5 to 3.0 millimeters." (Def. Ex. No. V-4.)

In the spring of 1960 Koppers came out with a special grade of high quality expandable polystyrene bead designated F-40-C which, unlike F-40, was of a standardized uniform bead size. Since then, F-40-C has been the type of bead material used by manufacturers of foam cups.

From 1954 until the early nineteen sixties, Mr. Edwin A. Edberg was in charge of Koppers' expandable polystyrene bead market development program. In that capacity Mr. Edberg gave many talks before trade associations and wrote a number of articles about expandable polystyrene beads—their properties, applications and methods of making the "foams" therefrom. In an ar-

ticle appearing in the March 1955 issue of *The Rubber and Plastics Age* Mr. Edberg wrote that these beads "may be expanded in heated molds into a variety of shapes and sizes in just one operation." Mr. Edberg gave three methods for heating and expanding the beads in the molds: "Direct introduction of dry steam into the mold cavity" or "steam heated molds" or "hot-air heated molds." The latter two methods were recommended where the thickness of the molded article was to be less than one inch. For "thin-vertical" sections it was recommended that the beads be partially expanded (using dry heat such as infrared bulbs or strip heaters) outside of the mold prior to their being introduced in the mold (Def. Ex. No. V-5).

In a paper presented at the Packaging Conference of the American Management Association at the Palmer House, Chicago, April 18-20, 1955, and later printed in No. 46 of *Packaging Series*, Mr. Edberg stated:

> "The molding operation consists of the following simple steps:
>
> 1. Charge a measured amount of expandable polystyrene to the mold to obtain the desired density.
> 2. Close the mold and apply heat (usually dry steam) until the beads are expanded.
> 3. Remove the source of heat and cool the mold.
> 4. Open the mold and remove foamed article." (Def. Ex. No. V-4.)

Other articles by Edberg subsequently appeared in the January 1956 issue of *Refrigerating Engineering* (Def. Ex. No. V-3), the March 1957 issue of *Refrigerating Engineering* (Def. Ex. No. V-2) and the September 1957 issue of *Modern Plastics Encyclopedia* (Def. Ex. No. V-1)—all giving information on the means for molding "foams" from expandable polystyrene beads.

During the early days (1955-56) of expandable polystyrene beads a number of people were engaged in the

commercial production of various "foam" articles. About October 1955 William L. Parsons commercially produced foam hi-fi speaker enclosures from a molding machine of the type shown in Def. Ex. No. F-H; in January 1956 Robinson Industries placed in commercial production a molding machine of the type shown in Def. Ex. No. G-H for making foam enclosures for air conditioning units; around May 1956 Donald Stevens molded for commercial use foam minnow buckets on a molding machine of the type shown in Def. Ex. No. H-H; and in August 1956 La Della Plastics placed in commercial use apparatus shown in Def. Ex. No. I-H for molding foam float rings.

The aforesaid four molding machines were all very simple slow-cycle, manually operated devices wherein a predetermined amount of beads were either dumped or blown (via an air stream) into a mold cavity through an inlet port, the port was then manually plugged and the mold heated. After cooling the mold was manually cracked and the foam article removed. The thickness of these various articles varied from ⅜" to 1 inch. The time to manufacture them ranged from 4 to 7 minutes.

In 1955 plaintiff Crown was in the business of making and selling plastic injection-molding machines and *solid* (as opposed to foam) plastic cups for the vending industry. These solid plastic cups had the disadvantage of high thermal conductivity, making them too hot to hold by the hand when containing a hot liquid.

In 1955 Crown undertook a development program to develop an automatic molding machine which would produce a thin-walled (in the order of .060 inches wall thickness), hot drink cup from expandable polystyrene beads.

Sometime during 1955 or 1956 Crown built its first foam cup machine. The evidence is in dispute as to the date of the first production of foam cups upon this machine. Based

upon the development of this machine, James M. Harrison and Robert E. Smucker, employees of Crown and developers of this machine, filed U. S. Patent Office application serial No. 619,259 on October 30, 1956, for improvements in "Apparatus and Method for Making Plastic Containers". On May 1, 1958, the Patent Office Examiner required Crown to make what is termed a "division" between the method claims and the apparatus claims in the application and prosecute the application on one or the other type of claims. Crown elected to prosecute application serial No. 619,259 on the method claims and to file a new application containing the apparatus claims. On December 22, 1964, U. S. Patent No. 3,162,705 issued on this application with one claim for "Method of Making Plastic Containers" (See Plt. Ex. No. 15).

On April 19, 1962, Harrison and Smucker filed application serial No. 191,662 with the Patent Office. This application contained, with modifications, the non-elected apparatus claims of the application serial No. 619,259 filed on October 30, 1956. On March 24, 1964, this application matured into U. S. Patent No. 3,125,780 containing four claims (See Plt. Ex. No. 11).

According to Crown, in order to successfully operate this first cup machine which it developed and upon which the '705 and '780 patents were based, it was necessary to screen the Koppers' F-40 polystyrene beads and remove beads larger than a certain size. This resulted in as much bead material being thrown away per cup as was used for making a cup. Accordingly, this machine was discarded and never used to commercially manufacture foam cups.

To solve the problem of the low grade material being supplied by Koppers during the fifties, Crown developed a second type of cup molding machine which solved this problem and went into commercial production on December

12, 1957. Based upon the development of this second machine, Harrison and Smucker filed on October 1, 1957, U. S. Patent Office application No. 687,394 for improvements in "Molding Mechanism and Heating Arrangement" which, on September 6, 1960, issued into U. S. Patent No. 2,951,260 containing thirteen claims. (See Plt. Ex. No. 7.)

Crown manufactured 300 of these '260 type machines and from December 12, 1957, until March 1960 all foam cups produced in the country were made on these machines by either Crown or its exclusive licensee Champion Papers, Inc. (hereinafter "Champion").

At approximately the time that Koppers introduced its high quality standardized expandable polystyrene bead F-40-C (March 1960) the first foam cups in competition with the Crown foam cups began to appear on the market. The first competitors were Bridges Plastic Products, Inc., of Los Angeles, California, and James A. Young of the San Francisco Bay Area. Bridges sold its first cups in March 1960 and Young in August 1960. Since then, numerous others, both licensed and unlicensed by Crown, have entered the foam cup manufacturing business.

Late in 1959 Darrow and Stanley Thompson of Thompson Industries, Inc. (hereinafter "Thompson") observed a Crown manufactured foam cup and decided that foam cups might be a product their company could make. Thompson then commenced to design a machine for manufacturing such cups and on November 10, 1960, Thompson produced its first commercial foam cups. Thereafter Thompson began the production and sale of its foam cup production machines (hereinafter referred to as the "Thompson Machine") and in January, 1963, Thompson sold several of them to defendant Sutherland. In August, 1963, Sutherland commenced the manufacture of foam cups on the Thompson Machines in Santa Clara, California.

On March 24, 1964, Crown commenced this suit against Sutherland. This is but one of many suits which Crown has commenced against purchasers and users of the Thompson Machines as well as against users of other types of machines (including Bridges and Young heretofore mentioned) and against Thompson Industries, Inc. Only this suit and the one against Thompson has been tried. On May 23, 1967, the United States District Court for the District of Arizona found that the '260, '780 and '705 Crown patents were not infringed by the Thompson Machines and that Crown had not violated the antitrust laws in its obtaining of and/or use of the foregoing patents. See *Crown Machine & Tool Co.* v. *D & S Industries, Inc.*, Civil No. 4942-PHX. Due to the particular nature of the Arizona suit against Thompson the Court there held, prior to trial, that defendant Thompson could not raise the issue of patent invalidity. *Ibid.* at p. 8.

After the emergence of foam cup competition in 1960 the '260 type molding machine was, according to correspondence between Crown and its exclusive licensee Champion, not able to meet the competition (See Def. Ex. No. B-D). In September, 1961, Champion demanded and obtained a modification of its original license agreement which enabled it to buy molding machines from manufacturers other than Crown or to develop its own machines if Crown was unable to furnish machines of comparable or better efficiency than the competition's (See Def. Ex. No. F-D). Champion then designed and constructed its own cup molding machine which it placed in commercial production in the fall of 1962 (Def. Ex. No. G-D). In 1963 Champion relinquished its exclusive license and since then, Crown has itself manufactured cups and has licensed others to manufacture foam cups on its patented machines.

Subsequent to 1963 Crown developed and manufactured a model P cup molding machine which Sutherland contends

is a copy of the Thompson Machine. The '260 type machine is no longer being manufactured or used by Crown.

Finally, the growth of the foam cup industry is evidenced by the approximately one billion foam cups sold in 1963, the approximately 1.7 billion foam cups sold in 1964 and the September, 1963, formation of the Foam Cup Manufacturers Division of the Society of the Plastics Industries.

II. The 3,162,705 Patent.

The '705 patent (Plt. Ex. No. 15) relates to a method for making thin-walled containers from expandable plastic beads. The patent contains the following sole claim:

> "A method of forming a cup shaped article having a relatively thin wall section from light weight, low density, finely divided beads of a foamable plastic material, such as polystyrene beads containing a foaming agent, such as butane or the like, including the steps of defining a cup shaped molding cavity with a thin wall section, supplying the relatively light weight, finely divided beads freely and on a demand fill basis to the bottom of the cup, applying an air pressure differential, through the full 360 degree circumferential extent of the cup cavity, and in a direction from the bottom of the cup to the top so that the beads will be accelerated into the cavity and will move into the most remote portions of the cup cavity from the point of initial supply, closing the point of initial supply of the cup cavity, and thereafter heating the beads in the cavity to their full foaming temperature to thereby cause the beads to individually unite, one with the other, and to glaze the outer surface of the thus formed article due to the internal pressure developed in the expanding beads."

Figures 1 and 2 of the '705 patent are shown in Appendices I and II, attached to this Memorandum.

The claim of the '705 patent first calls for the step of

"defining a cup shaped molding cavity with a thin wall section". As shown in Appendix II and described in the specification, this cup shaped molding cavity 70 is defined by the core element 40 and the cavity element 38.

The claim next calls for "supplying the relatively light weight, finely divided beads freely and on a demand fill basis to the bottom of the cup." As provided in Appendices I and II, and disclosed in the specification, a hopper 22 containing the beads is connected through the central passage 28 and inlet opening 52 to the bottom of the cup cavity. The plunger 32 opens and closes the inlet opening 52. When the plunger 32 is in the raised position beads flow into the mold cavity 70. The specification provides no definition of the words "demand fill basis" or meaning thereof, although it does state that "during loading, prefoamed beads are supplied until the mold cavity is substantially filled." (Plt. Ex. No. 15, col. 5, ll. 35-37.)

The claim next calls for "applying an air pressure differential, through the full 360 degree circumferential extent of the cup cavity, and in a direction from the bottom of the cup to the top so that the beads will be accelerated into the cavity and will move into the most remote portions of the cup cavity from the point of initial supply." The specification and drawings denote only one embodiment for accomplishing this: A vacuum 76 (Appendix I) is connected to the bead source 28 for sucking the beads into the mold cavity 70 via the connections 77 and 75, chamber Y (Appendix II), *porous* core element 40, mold cavity 70 and inlet opening 52. The specification suggests two other general means for loading the cavity but no structure is given in the drawings. The specification suggests applying a vacuum to the stripper ring 68 (Appendix II) or applying a positive pressure to the inlet opening 52 and blowing the beads into the mold cavity. Further, no definition or meaning of the words "through the full 360 degree cir-

cumferential extent of the cup cavity" is given in the specification.

The claim next calls for "closing the point of initial supply of the cup cavity". As shown in Appendices I and II and described in the specification, this is accomplished by the lowering of plunger 32 into the inlet opening 52.

The claim finally calls for "heating the beads in the cavity to their full foaming temperature to thereby cause the beads to individually unite, one with the other, and to glaze the outer surface of the thus formed article due to the internal pressure developed in the expanding beads." According to the specification and drawings this is accomplished by hot air or steam from source 74 (Appendix I) being drawn by vacuum 76 through connections 73 and 72 into chamber X (Appendix II), through the *porous* cavity element 38 into the mold cavity 70 (containing the beads), thence through the *porous* core element 40 into chamber Y and through connections 75 and 77 (Appendix I) to heat exchanger 86. The specification suggests another method of heating the beads but no corresponding structure is given in the drawings, to-wit: disposing a dielectric assembly around the cavity element 38 to instantaneously heat the beads in the mold cavity 70.

B. *Prosecution History in the Patent Office.*

Referring now to the file wrapper (Plt. Ex. No. 44) of the '705 patent it discloses that the initial application filed on October 30, 1956, contained 18 claims, of which ten were method claims and eight apparatus claims. The broadest method claim in this initial application was claim No. 1 and it claimed the process of forming an article from finely divided foamable plastic material by (1) prefoaming the raw beads by heating them, (2) pressing the prefoamed

beads so that all of the prefoamed beads will be no larger than a predetermined size, (3) supplying a predetermined quantity of the pressed, prefoamed beads to a mold, (4) heating the beads and (5) removing the finished article from the mold (Plt. Ex. No. 44, p. 12).

In the first action by the Patent Office all the claims were rejected. The method claims were rejected as unpatentable because nine of the claims (Nos. 1-7, 9, 10) were met by the British patent in view of the Wiss, et al., patent and the O'Neill patent. The other method claim (No. 8) was rejected for being obvious in view of the cited references.

In response to the above action of the Patent Office, Harrison and Smucker filed an amendment on October 17, 1957, cancelling seven of the method claims (Nos. 2-5, 7, 9, 10), amending the other three (Nos. 1, 6, 8) and adding a new method claim (No. 19). All the amended method claims except No. 1, now contained the additional limitation of supplying a predetermined quantity of the pressed, prefoamed beads into the mold by "applying a vacuum". In the accompanying remarks applicants conceded that prefoaming was old but that "In none of the references of record do we find any mention of loading a thin walled, somewhat elongated type cavity by drawing prefoamed beads into the cavity with a vacuum. Nor do we find any mention of preliminarily sizing the prefoamed beads by rolling, pressing or otherwise, so they will not stick or jam in the thin space in the cavity" (Plt. Ex. No. 44, p. 29).

In this same response the following language in the specification was cancelled: "While we have stated that loading the cavity is done by vacuum, it might be more accurate to say that loading is done by the creation of a pressure differential. For example, we might apply a positive pressure to the inlet or gate opening and blow the prefoamed beads into the mold."

Accordingly, at this stage of the prosecution, applicants urged that the patentability of their invention rested on the features: (1) vacuum means of loading the beads into the mold cavity and (2) preliminary sizing of the pre-foamed beads so that beads larger than a predetermined size are not used in the molding process.

In the second action taken by the Patent Office, dated May 1, 1958, the Examiner required applicants to make the heretofore mentioned "division" between the method claims and the apparatus claims so as to restrict the application to one or the other type of claims.

On September 8, 1958, applicants filed their election to prosecute the application on the method claims.

In the third action taken by the Patent Office, dated January 30, 1959, all claims were rejected as indefinite and application claims 1, 6 and 8 were rejected as unpatentable over the Koppers booklet in view of Glaxner, et al., and Jeffery patents. In this regard the Examiner stated:

> "The Koppers booklet shows pre-expanding polystyrene beads, placing said pre-expanded beads in a mold cavity, and heating said bead filled cavity to expand and unite said beads into the desired final product. There appears to be no invention in compressing the pre-expanded beads to reduce their volume for insertion into a mold cavity with closely spaced walls in view of Glaxner et al. who shows in column 1, lines 36-44, that compression may be used for reduction of the volume of pellets. In addition there appears to be no invention in using a vacuum to draw said beads into the mold cavity in view of Jeffery who shows on page 2, column 2, lines 46-75, the use of a vacuum for filling a mold with granular material." (Plt. Ex. No. 44, p. 36.)

In reply, applicants filed an amendment, dated July 28, 1959, wherein they cancelled all the foregoing claims (Nos. 1, 6, 8, 19) and in their place submitted two new claims

(Nos. 27, 28). Neither of the two new claims mentioned any particular method of supplying the beads to the mold cavity (e.g., applying a vacuum). Applicants in their remarks emphasized the problem of preliminary sizing of the prefoamed beadings and that this problem "is totally foreign to the Koppers Booklet." (Plt. Ex. No. 44, p. 39.) No mention was made in the remarks of the previously mentioned problem of loading the cavity with a vacuum or the Examiner's previous citation of the Jeffery patent as teaching the use of a vacuum to fill a mold cavity to be old.

Thus, at this stage of the prosecution applicants relied entirely upon the preliminary sizing of the prefoamed beads as their exclusive patentable difference over the prior art.

In the fourth action by the Patent Office, dated February 15, 1960, the Examiner rejected the two new claims (Nos. 27, 28) "as unpatentable over the Koppers booklet in view of common practice shown by either Ratner or Gates, et al. To merely reduce the size of the prefoamed pellets in order that they may be enterable into the given mold cavity, if prefoaming resulted in the pellets being oversize, would not amount to invention in view of the secondary references since no new and unobvious results have been show (sic)." (Plt. Ex. No. 44, p. 40.) The Examiner also informed applicants that final action on their application would be taken in the next Patent Office action.

In response thereto, Harrison and Smucker on July 20, 1960, requested the Examiner to reconsider his rejection of claims 27 and 28 on the ground that "the Examiner has not found art showing or suggesting or otherwise anticipating the idea of preliminarily sizing prefoamed beads before they are supplied to a molding cavity having thin walls." (Plt. Ex. No. 44, p. 44.)

Thus, after four Patent Office actions and faced with a

final action by the Examiner, applicants rested the patentability of their device exclusively on the step of preliminarily sizing the prefoamed beads.

However, six months later, but prior to any action by the Patent Office, Harrison and Smucker filed on January 3, 1961, a supplementary amendment cancelling claims 28 and 29 and adding two new claims in their stead (Nos. 29, 30). Both of these two claims lacked any mention of the recently emphasized step of sizing the prefoamed beads.[1] Rather, they emphasized the method of supplying the beads to the mold cavity, to-wit: "applying an air pressure differential to the cup cavity in a direction from the up bottom to the down upper lip of the cup cavity so that the beads will be accelerated down into the cup cavity and packed into the thin wall section" (No. 29) and "applying the air pressure differential to and through the full 360° circumferential extent of the down upper lip of the cup cavity to insure that the most remote portions of the cup cavity from the point of initial supply will be filled with beads." (No. 30.) (Plt. Ex. No. 44, pp. 45-46.) No amendment was made to the specification explaining the meaning of this new claim language quoted above.

In their accompanying remarks applicants argued that the patentability of their process now lay in the "idea of disposing a cup shaped cavity upside down, and then supplying finely divided, lightweight beads to the up bottom and insuring filling of the most remote portions of the cavity—meaning the down upper lip—by the use of an air pressure differential." (Plt. Ex. No. 44, p. 47.)

In the fifth action by the Patent Office, dated February 3, 1961, the Examiner rejected claims 29 and 30 as unpat-

1. In this regard it will be recalled that in March, 1960, Koppers introduced a special grade of high quality expandable polystyrene bead designated F-40-C which eliminated the necessity of having to size the prefoamed beads prior to introducing them to the mold cavity.

entable over the Koppers booklet in view of the Jeffery patent, stating: "Jeffery shows introducing a lightweight granular material into a mold cavity by a pressure differential. There appears to be no invention in introducing the pre-expanded beads of the Koppers booklet into the mold cavity by using a pressure differential in view of Jeffery." (Plt. Ex. No. 44, p. 49.) The Examiner made the rejection final.

After a personal interview with the Examiner, applicants filed on April 12, 1961, an amendment cancelling claims 29 and 30 and submitting claim 31 which, in essence, combined the two claims. Applicants stated that this amendment was for the purpose of placing the application in better condition for appeal if allowance of the claim was not granted.

Claim 31 was rejected on April 18, 1961, by the Examiner but entered for purpose of taking an appeal. On August 4, 1961, applicants filed a notice of appeal.

On appeal, applicants again stressed the method used to load the molding cavity arguing that Jeffery does not teach the step of "applying an air pressure differential, through the full 360° circumferential extent of the cup cavity, and in a direction from the top of the cup to the bottom so that the beads will be accelerated into the cavity and will move into the most remote portions of the cup cavity from the point of initial supply." (Plt. Ex. No. 44, p. 64.)

On October 31, 1963, the Board of Appeals affirmed the decision of the Examiner stating, "The feature upon which patentability is predicated is the application of suction to draw the material into the mold cavity as specified in the claim"; that Jeffery discloses the application of a vacuum "through an annular passage which extends through the full 360° circumferential extent of his mold cavity"

to draw material into the mold cavity; and "that the place of application of the vacuum would depend upon the shape of the cavity and would be obvious." (Plt. Ex. No. 44, p. 74.)

On November 21, 1963, applicants filed a Petition for Reconsideration, upon the ground that the Board misinterpreted the Jeffery patent in that Jeffery uses a quick vacuum to move a moist material while applicants use "air pressure differential to set up an airstream to a thin wall molding cavity with the airstream being the medium for moving light, foam, polystyrene beads into the furthest recesses of a thin wall cavity—something Jeffery clearly did not contemplate." (Plt. Ex. No. 44, p. 79.)

On August 4, 1964, the Board of Appeals reversed itself, stating:

> "The petition presents a cogent argument as to the character of the material treated in the Jeffery patent. Taking into account the specific material treated by Jeffery, i.e., a relatively moist powdered material, and considering appellants' purpose and specific mode of utilization of vacuum (air pressure differential), 'through the full 360 degree circumferential extent of the cup cavity, and in a direction from the top of the cup [mold cavity] to the bottom * * *.' we believe that we should depart from our decision and reverse the rejection of the appealed claim." (Plt. Ex. No. 44, pp. 80-81.)

Thereafter, on August 21, 1964, certain amendments to the specifications and claim 31 were submitted to the Examiner by applicants and allowed as "editorial amendments" in accordance with Rule 312 of the Patent Office.

One so-called editorial amendment was the re-insertion of two sentences ("While we have stated that loading the cavity is done by vacuum, it might be more accurate to say that loading is done by the creation of a pressure differ-

ential. For example, we might apply a positive pressure to the inlet or gate opening and blow the prefoamed beads into the mold") in the specification which applicants had deleted from their original application in their first response of October 17, 1957.[2]

Claim 31 is now the sole claim of the '705 patent and its validity and infringement are two of the issues in this action.

C. *Prior Art.*

Only two of the many prior art references cited by the Patent Office Examiner in the prosecution of the '705 patent need to be considered herein: Koppers Booklet, "Dylite-Expandable-Polystyrene" (1954) (Def. Ex. Nos. 1-18 and Jeffery U. S. Patent Re. 20,460 (1937) (Def. Ex. No. I).

The Koppers Booklet shows the process of making articles from lightweight low density, finely divided beads of a foamable plastic material containing a foaming agent by (1) supplying the relatively lightweight, finely divided beads freely to a mold cavity, (2) heating the beads to expand and fuse them together into a porous mass of the shape of the mold cavity, (3) cooling the mold and foamed article and (4) removing the article from the mold (Def. Ex. Nos. 1-18, p. 19).

In Jeffery a vacuum is used to draw a uniform fine dust with approximately 10% moisture into a molding cavity. Jeffery states that one of the purposes of this vacuum is to evacuate the cavity so that "the powder is moved into the cavity quickly, uniformly and in a more dense condition than would result from merely pouring the powder into the container." (Def. Ex. I, p. 6, ll. 51-53.) There-

2. It is to be noted that this identical amendment was filed with the United States Patent Office on January 16, 1963, in the prosecution of the application for the '780 patent—a year and a half prior to the above editorial amendment.

after, the mold in Jeffery is closed and a higher vacuum is applied to "remove the air and gases from the powder, so that the compressed blank will have the entrapped gas therein eliminated as far as possible."

In addition to the foregoing, defendant cites and places great emphasis upon the alleged prior uses of Parsons who manufactured foam hi-fi speaker enclosures, Robinson Industries which made foam enclosures for air conditioning units, Stevens who made foam minnow buckets and La Della Plastics which manufactured foam float rings. However, as heretofore mentioned these devices were slow-cycle, manually operated, molding machines whose molded articles were quite thick. In the opinion of the Court these prior public uses are not closely in point on the question of patent validity.

D. *Patent Validity.*

The 1952 Patent Act sets forth three conditions of patentability: Utility (35 U. S. C. § 101), Novelty (35 U. S. C. § 102) and Nonobviousness (35 U. S. C. § 103). We assume that the prior art does not disclose the process claimed in plaintiff's '705 patent and concern ourselves directly with the question of whether the '705 claim meets the test of nonobviousness, to-wit:

> "A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made." 66 Stat. 798 (1952), 35 U. S. C. § 103 (1964).

In applying this test, the Court in the recent case of *Graham* v. *John Deere Co.*, 383 U. S. 1, 17 (1966) said:

> "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy."

Regarding the claims at issue the Court in *John Deere* admonished, at page 33, that:

> ". . . an invention is construed not only in the light of the claims, but also with reference to the file wrapper or prosecution history in the Patent Office. . . . Claims as allowed must be read and interpreted with reference to rejected ones and to the state of the prior art; and claims that have been narrowed in order to obtain the issuance of a patent by distinguishing the prior art cannot be sustained to cover that which was previously by limitation eliminated from the patent."

Turning to the sole claim of the '705 patent we have seen from its file wrapper history that from the time the Examiner first cited the Jeffery patent in the Patent Office action of January 30, 1959, until January 3, 1961, Harrison and Smucker did not urge the step of loading the mold cavity by applying an air pressure differential, but, instead, relied entirely upon the step of preliminary sizing the prefoamed beads as the exclusive patentable difference in their method or process over the prior art. Apparently, at this time, the applicants agreed with the Examiner that there was "no invention in using a vacuum to draw said beads into the mold cavity in view of Jeffery." (Plt. Ex.

No. 44, p. 36.) In addition, applicant's position at this time would be consistent with the commercial realities of the foam cup business, wherein, according to Crown, their main problem in making commercial use of the machine first developed (disclosed in the '705 and '780 patents) was the sizing of the beads from low quality material being supplied by Koppers. After Koppers introduced its high quality F-40-C bead, there was no sizing problem, and everybody then got into the foam cup business.

Thus, it is crystal clear that when Crown abandoned the foregoing line of argument on January 3, 1961, and thereafter concentrated on the step of supplying beads by an air pressure differential, it was a result of Koppers' introduction of the F-40-C bead which eliminated the problem of sizing.

Turning to the step upon which the Board of Appeals allowed the claim, we have seen from the file wrapper history that initially the Board affirmed the decision of the Examiner finding that "the application of suction to draw the material into the mold cavity" was taught by Jeffery and that the "place of application of the vacuum would depend upon the shape of the cavity and would be obvious." (Plt. Ex. No. 44, p. 74.)

The Board reversed itself based upon the specific material treated by Jeffery (a relatively moist powdered material) *vis a vis* plaintiff's dry, lightweight particles and the purpose and specific mode of utilization of vacuum (air pressure differential) by plaintiff. This Court is at a loss to explain the Board's allowance on the basis of the above distinction.[3] Whether a vacuum is used to move a fine dust with approximately 10% moisture into a mold cavity or used to move dry lightweight particles into a mold cavity

3. In *Graham* v. *John Deere Co.*, *supra* at 18, the Court said, "We have observed a notorious difference between the standards applied by the Patent Office and by the courts."

is a distinction without a difference.[4] Vacuums are used for moving many different types of materials and a mere change of usage is not the sort of nonobvious difference upon which a patent may be obtained.

The Board, however, also reversed itself upon the specific mode of utilization of vacuum by Harrison and Smucker's '705 claim *vis-a-vis* Jeffery. Previously the Board had held in affirming the Examiner that the application of the vacuum "would depend upon the shape of the cavity and would be obvious."

The language of the claim on this point, "applying an air pressure differential, *through the full 360° circumferential extent of the cup cavity,* and in a direction from the bottom of the cup to the top so that the beads will be accelerated into the cavity" was (as to the italicized portion) added for the first time on January 3, 1961, without any amendment to the specification in aid of explanation. What this language means in terms of a specific mode of utilization of air pressure differential to fill the mold cavity is unclear. The Board of Appeals in allowing this language did not specify what this unique mode of applying air pressure differential was, but merely quoted the language of the claim.

Plaintiff claims this language covers blowing the beads into the mold cavity or sucking them in by drawing a vacuum either through the stripper ring 68 (Appendix II) or through the porous walls and top of the core element 40. In effect, plaintiff seeks to use this unclear language to cover any and all means whereby an air pressure differential transfers the polystyrene beads to all portions of its

4. In this regard it appears that the beads are supplied with moisture when the mold cavity is heated by dielectric means. The specifications of the '260 patent suggest spraying or otherwise coating the beads with a jet of water prior to loading them into the mold when using dielectric heating. (Plt. Ex. No. 7, col. 7, ll. 23-26.

cup shaped cavity. (See plaintiff's proposed finding No. 50). This plaintiff cannot do. Jeffery shows loading a cavity by means of a vacuum to be old.

Nor can this claim be restricted to any particular embodiment disclosed in the specification of applying air pressure differential. The specific embodiment in the specification providing (without corresponding structure in the drawings) that the mold cavity be loaded by applying a positive pressure at the inlet to the mold cavity and blowing the beads therein is obvious in light of all the other steps of the process claimed (which are met by the Koppers booklet.)[5]

The embodiments of applying a vacuum through the stripper ring 68 or through the porous core element 40 are obvious means (in view of Jeffery) of vacuum loading plaintiff's particular mold cavity. The drawing of the vacuum through the stripper ring 68 would be obvious to one skilled in the art since it is the area furthest from the point of initial supply of beads (inlet opening 52) and, therefore, the most logical place for insuring that the mold cavity be completely filled. The pulling of the vacuum through the porous walls of the core element 40 would also be obvious to a person having ordinary skill in the art since the beads are supposed to completely surround said element and be molded thereon. *Naturally*, the application of vacuum to all portions of the core element would accomplish this.

The fact that all portions and recesses of plaintiff's

5. It is to be noted that this positive pressure embodiment was never before the Board of Appeals but added subsequent to the appeal as an editorial amendment. Had this embodiment been before them it might have impressed them that there was nothing unique about loading plaintiff's mold cavity. Furthermore, had this embodiment been before the Examiner prior to the taking of the appeal, pertinent prior art might have been cited showing blow-filling to be old.

thin-walled mold cavity can be successfully loaded by a vacuum (applied through either the stripper ring 68 or the core element 40 or by merely blowing the beads in at the inlet opening 52) clearly shows that there is no special problem associated with supplying plaintiff's thin-walled mold cavity with beads as they so strenuously urged during the *latter* period of the prosecution of their '705 application.

In support of patentability plaintiff Crown cites the failure of others to produce a thin-walled foam cup during the fifties, the commercial success of its foam cup and the fact that it and its exclusive licensee Champion were the sole commercial producers of foam cups from December, 1957 until March 1960.

However, Crown's commercial success was not due to the foam cup machine disclosed in the '705 and '780 patents, but rather to the development of the '260 type machine which solved the problem, according to Crown, of the low grade polystyrene bead material being supplied by Koppers during the fifties. The foam cup machine disclosed in the '705 and '780 patents was discarded and never used commercially.

The fact that after Koppers solved its materials problem everyone jumped into the foam cup manufacturing business would tend to refute the patentability of the process claim of the '705 patent since the problem was one of sizing the beads prior to Koppers' introduction of the F-40-C beads, not of the application of any air pressure differential to load the mold cavity (which was the sole feature upon which patentability of the '705 claim was predicated and allowed by the Board of Appeals).

Except for the step of applying an air pressure differential, the Koppers booklet (Def. Ex. No. I) teaches all the other steps of the '705 method claim. Plaintiff, however,

claims that these other steps of its '705 claim are not met by the teachings of the Koppers booklet. (See plaintiff's Ex. No. 51-A). This plaintiff cannot now do. "[Claims that have been narrowed in order to obtain the issuance of a patent by distinguishing the prior art cannot be sustained to cover that which was previously by limitation eliminated from the patent." *Graham* v. *John Deere Co.*, *supra* at 33. And, as we have seen from the file wrapper history of the '705 patent the sole feature of patentability upon which the claim was allowed by the Board of Appeals was the application of the air pressure differential.

In view of the foregoing it is the conclusion of this Court that the sole claim of the '705 patent is invalid upon the ground that it fails to meet the test of nonobviousness as specified in 35 U. S. C. § 103.

III. The 3,125,780 Patent.

A. *Description.*

The '780 patent (Plt. Ex. No. 11) relates to an apparatus for making foamed cups from a plastic material containing a foaming or blowing agent. While the patent contains four claims, only claims 1 and 3 are at issue in this action.

Claim 1 provides:

> "In a molding mechanism for forming plastic articles, such as drinking cups and the like, from foamable plastic material, a base, a frame supported on the base, mold parts thereon defining a cup-shaped molding cavity including a cavity element and a core element, a source of supply on the frame adapted to supply foamable plastic material to the cavity, a supply passage between the source of supply and the cavity communicating with the cavity generally in the center of the small end of the cup as defined by the cavity, a valve for controlling the supply passage including a movable plunger generally aligned with the axis of the cavity and having a diameter less than the diameter of the

bottom of the cup, the plunger being movable between a withdrawn position to allow foamable material to flow through the supply passage into the cavity and an extended position in which the plunger closes the supply passage and the face of the plunger completes the bottom of the cup as defined by the cavity, means for creating an air pressure differential through the cavity to convey the beads from the supply passage to the top edge of the cup as defined by the cavity, including means for applying a positive air pressure to the supply passage for blowing the prefoamed beads into the molding cavity, and means for heating the cavity to foam and unite the foamable material into a finished article."

Claim 3 provides:

"The structure of claim 1 further characterized in that the cavity and core elements that make up the molding cavity are impervious so that the air stream caused by the means for creating an air pressure differential flows through the cavity between and generally parallel to the opposed faces of the elements."

Figures 1 and 2 of the '780 patent are reproduced in Appendices III and IV, attached to this Memorandum. These drawings are almost identical with the drawings of the '705 patent except for two additions: the '705 patent drawings (Appendices I and II) do not contain the air pipe 94 seen in Appendices III and IV, nor the vacuum 88 connected to stripper ring 68 seen in Appendix IV.

Claim 1 of the '780 patent calls for a "base" and "a frame supported on the base." As described in the specification the base is denoted with the number 12 (Appendix III) and the frame with number 10.

Claim 1 next calls for "mold parts thereon defining a cup shaped molding cavity including a cavity element and a core element." As shown in Appendix IV and described in the specification the mold cavity 70 is defined by the cavity element 38 and the core element 40.

Claim 1 next calls for "a source of supply on the frame adapted to supply foamable plastic material to the cavity." As described in the specification this source of supply is hopper 22 (Appendix III).

Claim 1 also calls for "a supply passage between the source of supply and the cavity communicating with the cavity generally in the center of the small end of the cup as defined by the cavity." As seen in Appendix IV and described by the specification, the supply passage 28 connects the source of supply 22 with the mold cavity 70 at a point (inlet opening 52) just above the center of the top surface of the core element 40 (i.e., center of the small end of the cup as defined by the cavity 70).

The claim next calls for "a valve for controlling the supply passage including a movable plunger generally aligned with the axis of the cavity and having a diameter less than the diameter of the bottom of the cup, the plunger being movable between a withdrawn position to allow foamable material to flow through the supply passage into the cavity and an extended position in which the plunger closes the supply passage and the face of the plunger completes the bottom of the cup as defined by the cavity." The specification describes this valve as plunger 32 which is raised and lowered by air cylinder 30. When plunger 32 is raised (the withdrawn position) prefoamed beads flow through inlet opening 52 into the cavity and after a predetermined time the supply passage 28 is closed by the lowering of the plunger 32 into inlet opening 52. It is noted in Appendix IV that in the lowered position the plunger 32 completes the top of the cavity element 38 (i.e., the bottom of the cup as defined by the cavity).

Claim 1 next calls for "means for creating an air pressure differential through the cavity to convey the beads from the supply passage to the top edge of the cup as

defined by the cavity, including means for applying a positive air pressure to the supply passage for blowing the preformed beads into the molding cavity." The specification and drawings provide three different embodiments for creating an air pressure differential to convey the beads from the supply passage 28 to the mold cavity 70, to-wit: (1) A vacuum 76 (Appendix III) is connected to the bead source via the connection 77 and 75, chamber Y (Appendix IV), porous core element 40, mold cavity 70, and inlet opening 52; (2) The cavity element 38 and core element 40 are impervious and the vacuum 88 (Appendix IV) is connected to the supply passage 28 via the passage 90, channel 92, porous stripper ring 68, mold cavity 70 and inlet opening 52; and (3) a positive air pressure blows the beads into the mold cavity 70 by means of the air pipe 94 which directs a jet of air at the inlet opening 52.

Finally, claim 1 calls for "means for heating the cavity to foam and unite the foamable material into a finished article." The specification describes two embodiments for accomplishing the hearing: (1) Hot air or steam is drawn from source 74 (Appendix III) by vacuum 76 through connections 73 and 72 into chamber X (Appendix IV), thence through the porous cavity element 38 into the mold cavity 70, thence through the porous core element 38 into chamber Y and then through connections 75 and 77 to heat exchanger 86 (Appendix III) and (2) disposing a dielectric assembly around the cavity element 38 to instantaneously heat the prefoamed beads in the mold cavity 70. No structure is given in the drawings for accomplishing this latter method of heating.

Claim 3 is dependent upon claim 1 and calls for the additional limitation, "that the cavity and core elements that make up the molding cavity are impervious so that the air stream caused by the means for creating an air pressure differential flows through the cavity between and gen-

erally parallel to the opposed faces of the elements.'' This claim merely limits the embodiments for creating an air pressure differential, heretofore discussed, so that the embodiment wherein a vacuum is applied to the *porous* core element is excluded.

B. *Prosecution History in the Patent Office.*

As previously noted, this application serial No. 191,662, filed on April 19, 1962, is a division of application serial No. 619,259, filed on October 30, 1956. In reviewing the file wrapper history of the '780 patent (Plt. Ex. No. 43) it will first be necessary to examine the file wrapper of the '705 patent (Plt. Ex. No. 44) from the time of filing until the Examiner required a ''division'' on May 1, 1958.

Referring again to the file wrapper of the '705 patent (Plt. Ex. No. 44) it appears that the initial application filed on October 30, 1956, contained not only ten method claims (heretofore discussed), but also eight apparatus claims (Nos. 11-18).

In the broadest apparatus claim filed (No. 11) and the one upon which all other apparatus claims were dependent there was provided as one element thereof ''means for applying a pressure differential to the cavity to convey beads into the cavity from the hopper'' (Plt. Ex. No. 44, p. 14).

In the first action by the Patent Office, dated May 3, 1957, apparatus claims 11, 12-14, 16, 17 were rejected as unpatentable over Wiss, et al., in view of the O'Neill, Wiley, Gard and Mollers patents (Plt. Ex. No. 44, pp. 19-20).

In response thereto, Harrison and Smucker filed an amendment on October 17, 1957, wherein the heretofore mentioned element of the broadest apparatus claim (No. 11) was narrowed to read, ''means for applying a *vacuum* to the cavity to convey beads into the cavity from the

hopper" (Plt. Ex. No. 44, p. 26). All but two of the other apparatus claims were cancelled and a new apparatus claim was added (No. 20). All apparatus claims now contained the limitation of loading the cavity by means of a "vacuum".

In this same response, applicants deleted from the specification the sole mention of loading the cavity by applying a positive pressure and blowing the prefoamed beads into the mold. In their accompanying remarks applicants stressed the problem of filling a thin-walled cavity with prefoamed beads and that they had solved this problem "by loading the cavity with vacuum" (Plt. No. 44, p. 28).

Thus, at this stage of the prosecution, it is evident from the fact that all apparatus claims contained only the vacuum means of loading the mold cavity and, in addition, the deletion from the specification of the sole mention of using positive pressure to fill the mold cavity, that applicants either had not tried using a positive pressure to load their mold cavity or had been unsuccessful in using such a means to load their cavity.

In the next action by the Patent Office a division was required and, as previously mentioned, applicants elected to prosecute the serial No. 619,259 application upon the method claims.

It was not until three and one-half years later, on April 19, 1962, that Harrison and Smucker filed a new application (serial No. 191662) containing, with modifications, the non-elected apparatus claims. Referring to the file wrapper of said application (Plt. Ex. No. 43) it is seen from the two apparatus claims submitted therein that one of the claims (No. 3) did not include the element of means for conveying beads into the cavity, and the other claim (No. 4) included as an element "means for applying an air pressure differential through the cavity to load the cavity with foam-

able material, the air being exhausted through the pores of the stripper ring so that the foamable material flows from the small end of the cavity toward the stripper ring at the large end." (Plt. Ex. No. 43, pp. 14-15.) The specification of the application mentions vacuum as the only means of loading the beads into the mold cavity.

However, before any action was taken by the Patent Office, applicants filed a preliminary amendment on January 14, 1963, inserting the identical language in the specification that they had deleted from the '705 patent application on October 17, 1957, to wit: the application of a positive pressure to the inlet or gate opening and blowing the beads into the mold cavity. In addition, they submitted a new claim (No. 5) dependent on claim No. 3 and containing the additional element of "means for creating an air pressure differential through the cavity to convey the beads from the supply passage to the top edge of the cup as defined by the cavity, including means for applying a positive air pressure to the supply passage for blowing the prefoamed beads into the mold." (Plt. Ex. No. 43, pp. 20-21.)

Thus, for the first time applicants specifically *claimed* a positive air pressure means for loading the mold cavity and inserted in the specification the positive air pressure language that had been deleted from the parent application over five years prior thereto.[6]

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6. It is clear that this amendment and emphasis on filling the mold cavity by using a positive air pressure resulted directly from James Harrison's (President of Plaintiff Crown) inspection of a Thompson Machine on January 3, 1963 (11 days prior to the filing of this amendment), and his report to Crown's patent attorney that the Thompson Machine used "positive pressure". See Harrison testimony (RT 1254). In response to this inspection and report Crown's patent attorney wrote Mr. Harrison on January 10, 1963 (4 days before the filing of the amendment), "I reviewed this case in view of the Thompson situation, at least as we know this machine, and I have added a new claim to emphasize this plunger and positive pressure in the inlet for loading the cavity." (Def. Ex. No. K-I.)

In the Patent Office action that followed on May 10, 1963, claim No. 3 was rejected as "unpatentable over Kelley who shows the basic structure claimed. See Figure 1. Remaining differences, if any, would appear to be but mere matters of design" (Plt. Ex. No. 43, p. 24). Claims 4 and 5 were allowed. In addition, applicants were required to illustrate in their patent drawings every feature specified in their claims.

Allowed claim 4 differed from rejected claim No. 3 in only one significant respect: it had the additional element of loading the mold cavity with beads by means of an air pressure differential applied through the pores of the stripper ring. Allowed claim 5 was dependent upon rejected claim 3 and contained the additional element, heretofore quoted, of means for creating an air pressure differential and specifically including therein positive air pressure means.

Thus, the allowance of claims 4 and 5 over claim 3 indicates that the feature upon which patentability was found by the Examiner was the means of applying an air pressure differential to convey the beads from the source to the mold cavity. In this regard, however, the Examiner did not cite or make mention of the Jeffery patent, although that patent was cited in the '705 and '260 prosecutions as teaching the use of a vacuum to fill a mold cavity.

On June 10, 1963, applicants filed a response wherein they amended their drawings and specification to provide for the addition of an air pipe 94 and vacuum pump 88 connected to stripper ring 68 (Appendix IV).

On October 1, 1963, the Patent Office mailed applicants a "Notice of Allowance" granting them a patent with the aforesaid two claims.

On November 26, 1963, applicants filed a Rule 312 amendment requesting certain changes to the specifications and

claims, and, in addition, submitting a new claim (No. 6), which changes and additions, applicants urged were merely "editorial" and did not require any additional search on the part of the Examiner (Plt. Ex. No. 43, pp. 45-48). The Patent Office by action dated December 16, 1963, refused to enter and allow these amendments.

After a personal interview with the Examiner, applicants submitted another amendment consisting of two new claims (Nos. 6, 7). These two new claims were allowed by the Patent Office without comment and the '708 patent thereafter issued with four claims.

C. *The Prior Art.*

The Kelly U. S. Patent (No. 2,773,284) and the Koppers booklet "dylite-expandable-polystyrene" (Def. Ex. No. H-3, H-8), both cited by the Patent Office Examiner during the prosecution of the '780 patent and the Jeffery U. S. Patent Re. No. 20,460 (Def. Ex. No. G-1) are all that need be considered herein on the question of patent validity.

As pointed out by the Examiner, Kelly "shows the basic structure claimed" in plaintiff's rejected claim 3, to-wit: (1) a cup-shaped molding cavity 11 including a cavity element 12 and a core element 10, (2) a supply passage 16, 15, 18 and 19 between a source of supply (not shown in the drawings, but suggested in column 2, lines 46-48) and the cavity 11 communicating with the cavity generally in the center of the small end of the Kelly article as defined by the cavity 11, and (3) a valve for controlling the supply passage 19 including a movable plunger 24 generally aligned with the axis of the cavity and having a diameter less than the diameter of the small end of Kelly's article, the plunger 24 being movable between a withdrawn position to allow the plastic material to flow through the supply passage into the cavity and an extended position in which the

plunger 24 closes the supply passage and the face of the plunger completes the bottom or small end of Kelly's article as defined by cavity 11.

The only important element lacking from Kelly and claimed in rejected claim 3 is the means for heating the mold cavity. Kelly has no means of heating the mold cavity since the plastic material introduced into its mold cavity is in a hot molten state.

The Koppers booklet suggests two means of heating the beads in a mold cavity: Direct introduction of steam into the mold cavity or indirect heating of the mold cavity. With respect to the former means of heating the mold cavity, the booklet suggests that "Drilled cavity molds permit the rapid molding of detailed parts using automatically controlled equipment." (Def. Ex. No. H-18, p. 19.)

The other reference, Jeffery, has been previously discussed in connection with the '705 patent.

D. *Patent Validity.*

The same reasons for holding the sole method claim of the '705 patent invalid for lack of nonobviousness are applicable to claims 1 and 3 of the '780 patent.

The Kelly patent and the Koppers booklet teach all the elements of patent claim 1 except the application of an air pressure differential through the cavity to convey the beads from the supply passage to the mold cavity. Jeffery teaches the application of a vacuum (air pressure differential) to fill a cavity with a fine powder "quickly, uniformly and in a more dense condition."

This Court has previously determined in holding the '705 method claim invalid for lack of nonobviousness that the step of applying an air pressure differential to load a mold cavity is obvious in view of Jeffery and, in addition, that the specific embodiments of using a positive pressure

to blow the beads into the mold cavity, and using a vacuum either at the porous core element 40 or at the stripper ring 68 to suck the beads into the cavity are also obvious. That reasoning is fully applicable to claim 1 of the '780 patent.

In the prosecution of the '780 patent application, the Examiner did not cite the Jeffery patent. In view of the fact that application claim 3, which the Examiner rejected, and application claims 4 and 5, which he allowed, differed in only the respect that the latter two claims contained the additional element of loading the mold cavity by means of an air pressure differential—the Jeffery patent would have been most relevant. Had the Examiner located the Jeffery patent he might have come to the same conclusion as the Examiner in the '705 prosecution, namely: "Jeffery shows introducing a lightweight granular material into a mold cavity by a pressure differential. There appears to be no invention in introducing the pre-expanded beads of the Koppers booklet into the mold cavity by using a pressure differential in view of Jeffery." (Plt. Ex. No. 44, p. 49.)

Furthermore, we have seen that plaintiff's claim of a positive air pressure in the amendment filed on January 14, 1963, was the direct result of Crown's President Harrison's inspection of a Thompson Machine and his report to his patent attorney that Thompson used "positive pressure". The plaintiff's resort to a claim of a positive air pressure to supply the beads to the mold cavity is reminiscent of *Atlantic Works* v. *Brady*, 107 U. S. 192 (1882) where the Court said that the practice of granting patent monopolies for every shadow of a shade of an idea "creates a class of speculative schemers who make it their business to watch the advancing wave of improvements, and gather its foam in the form of patented monopolies, which enable them to lay a heavy tax upon the industry of the country, without contributing anything to the real advancement of the arts."

In light of Jeffery and the reasoning given in the discussion of the '705 patent, and that given herein, it is the conclusion of this Court that claim 1 of the '780 patent is invalid upon the ground that it does not meet the test of non-obviousness as enunciated in 35 U. S. C. § 103.

Patent claim 3 of the '780 patent is dependent upon claim 1 which has been held invalid. As we have seen, patent claim 3 was added as an editorial amendment and merely restricts claim 1 to an impervious core and cavity element, eliminating the air pressure differential applied through the porous core element 40. Inasmuch as the specific embodiment of applying an air pressure differential through the stripper ring, which this claim is directed toward, has been previously held to be obvious in view of the prior art this claim also must fall.

Accordingly, claim 3 of the '780 patent is declared invalid upon the ground that it fails to meet the test of non-obviousness, 35 U. S. C. § 103.

IV. The 2,951,260 Patent.

A. *Description.*

The '260 patent (Plt. Ex. No. 7), like the '780 patent, relates to an apparatus for molding cup-like containers from plastic materials containing so-called "foaming" agents. While this patent contains 13 apparatus claims only claim 12 is at issue in this suit.

Claim 12 provides:

> "In a molding machine for molding plastic articles from partially expanded foamable plastic beads, a base, a generally upright frame on the base, molding parts thereon defining a generally frusto-conical molding cavity, small end up, including at least a cavity element open at both ends and a core element insertable into one end of the cavity element, at least one such

element being movably mounted relative to the other, abutting surfaces on the elements for engagement when the core element is fully inserted into the cavity element, a source on the frame for supplying partially expanded beads to the molding cavity, a valve between the bead source and the cavity for controlling the supply of such beads, power means for moving the one element and for operating the valve in times relation to the cyclical operation of the machine, a source of air pressure differential for conveying beads from the bead source into the molding cavity when the valve is open, such air source being in communication with the molding cavity, and a peripheral outlet in communication with the large bottom end of the cavity so that the source of pressure differential will create an air current through the cavity when the valve is open to convey beads from the bead source into the cavity."

Figures 1 and 2 of the '260 patent are set forth in Appendices V and VI, respectively, attached to this Memorandum.

Claim 12 first calls for a "base" and "a generally upright frame on the base." The base is not shown in the appendices but base plate 12 (Appendix V), which is secured to the base, is shown along with the upright frame 10.

Claim 12 next calls for "molding parts thereon refining a generally frusto-conical molding cavity, small end up, including at least a cavity element open at both ends and a core element insertable into one end of the cavity element, at least one such element being movably mounted relative to the other." As described in the specification the cavity element is indicated generally at 18 and the core element is indicated generally at 20. The core element is carried in its entirety on piston rod 84 (Appendix V), which raises and lowers the core element for purposes of ejecting the finished molded cup, thereby making the core element "movably mounted relative" to the cavity element.

Claim 12 next calls for "abutting surfaces on the elements for engagement when the core element is fully inserted into the cavity element." As delineated in the specification the cavity and core elements abut at surfaces 146 (Appendix VI).

The claim next calls for a "source on the frame for supplying partially expanded beads to the molding cavity." As seen in Appendix V and disclosed in the specification the source of beads is hopper 156.

Next the claim calls for "a valve between the bead source and the cavity for controlling the supply of such beads." The specification and drawings described only one valve type arrangement: a slide valve 154 (Appendix VI) which moves at right angles to the axis of the cavity by means of piston rod 166. When transfer chamber 162 in the slide valve 154 is positioned below the hopper 156 beads fall down into it. When the chamber 162 is moved to the right by means of the piston rod 166 and positioned over the open top mold the beads are free to be drawn into the molding cavity.

Claim 12 next calls for "power means for moving the one element and for operating the valve in timed relation to the cyclical operation of the machine." The power means for operating slide valve 154 is air cylinder 164 (Appendix V) which moves it by means of the piston rod 166. The power means for moving the core element is a lower power cylinder, which, according to the specification, is not shown, but which moves the core element by means of the piston rod 84. While the language in "timed relation to the cyclical operation of the machine" is not defined in the specification it apparently means that the operation of the slide valve 154 (which delivers the beads to the mold cavity) and the movement of the core element (for ejection of the finished cup) are done at certain predetermined times in the cyclical operation of the machine.

The claim finally calls for "a source of air pressure differential for conveying beads from the bead source into the molding cavity when the valve is open, such air source being in communication with the molding cavity, and a peripheral outlet in communication with the large bottom end of the cavity so that the source of pressure differential will create an air current through the cavity when the valve is open to convey beads from the bead source into the cavity." The specification describes only one embodiment for accomplishing this. It specifies that a vacuum be communicated through the channels or holes 144 (Appendix VI) to the abutting surfaces 146; that the abutting surfaces 146 are slightly separated or "cracked" by means of the stand-off pins 80 (which pins project downwardly when activated by air pressure being supplied at chamber 74) causing the vacuum to be communicated to the cavity itself when the chamber 162 is full of beads and positioned over the open mold cavity. This separation of the abutting surfaces 146 creates a "peripheral outlet" in communication with the large bottom end of the cavity and permits the vacuum to suck the beads from the chamber 162 into the cavity. After a predetermined time the stand-off pins 80 are de-activated, and the surfaces 146 once again abut, thereby cutting off the vacuum from the mold cavity.

After the mold cavity is full of beads slide valve 154 returns to its position at the very left (wherein chamber 162 is below the hopper 156), the beads are then heated in the mold cavity and after cooling, the core element 20 is lowered and the finished cup is ejected.

B. *Prosecution History in the Patent Office.*

The file wrapper (Plt. Ex. No. 42) of the '260 patent application discloses that this application containing thirteen apparatus claims, was filed on October 1, 1957, (eleven months after the filing of the '705 patent application).

Application claim 19 (upon which patent claim 12 issued) was not presented in the initial application, but in a subsequent amendment to the application.

In the first action by the Patent Office, dated February 3, 1958, three claims were allowed (Nos. 7-9) without citation of a reference against them. The remaining ten claims were rejected.

On June 18, 1958, and on October 23, 1958, applicants Harrison and Smucker filed amendments to the application. In the amendment of October 23, 1958, Crown introduced application claim 19 (which eventually matured into patent claim 12 now in issue).

Thereafter, on November 25, 1958, claim 19 was rejected by the Patent Office as indefinite, inaccurate and as "unpatentable over Laraway et al or Smucker et al in view of Jeffery. Both Laraway et al and Smucker et al show molds comprising a cavity element and a core insert each of which has fluid heating means. There appears to be no invention in adding a vacuum feed to the mold cavities of the primary references in view of Jeffery who shows such to be old in the art." (Plt. Ex. No. 42, p. 40.)

According to the Patent Office, claim 19 was inaccurate because the peripheral outlet as claimed, appeared contrary to the disclosure, to be a permanent opening in said mold cavity.

On April 13, 1959, applicants filed a response amending application claim 19 in a number of places including that dealing with the peripheral outlet.

On November 27, 1959, the Examiner rejected claim 19 again for being inaccurate because "the relation between the valve, power means to operate said valve, and the peripheral outlet is not clearly and concisely set forth in accordance with that disclosed in the specification." (Plt. Ex. No. 42, p. 47.) The Examiner in this action, however,

did not cite any prior art references against claim 19 as he had in the previous Patent Office Action. Thus at this stage of the prosecution, claim 19 was being rejected solely on grounds of inaccuracy.

On March 30, 1960, after a personal interview with the Examiner, applicants filed a response amending claim 19 and adding a new claim (No. 21), dependent upon claim 19.

Thereafter claim 19 was allowed along with claim 21. Claim 19 issued as patent claim 12—the sole claim of the '260 patent in issue in this action.

C. *Prior Art.*

Application claim 19 was originally rejected by the Examiner as "unpatentable over either Laraway et al or Smucker et al in view of Jeffery." (Plt. Ex. No. 42, p. 40.) Of the various prior art references cited by defendant in this action these patents are, in the opinion of the Court, the closest in point.

The Laraway, et al, patent (Def. Ex. No. G-2) shows molding parts, including a cavity, open at the top, and a core element insertable into one end of the cavity with the core element being movably mounted relative to the cavity element. This reference also shows abutting surfaces on the elements for engagement when the core element is fully inserted into the cavity element, and power means for moving the core element.

The Smucker, et al, patent (Def. Ex. No. G-11) shows molding parts defining a generally frusto-conical molding cavity 41, including at least a cavity element 32 open at both ends (completely open at one end) and a core element 30 insertable into one end of the cavity element with the core element being movably mounted relative to the cavity element. In addition, Smucker shows abutting surfaces on the elements for engagement when the core element is fully

inserted into the cavity element, a plunger type valve for controlling the supply of liquid plastic material and power means for moving the core element.

The Jeffery patent has been previously discussed herein.

D. *Patent Validity.*

In *United States* v. *Adams*, 383 U. S. 39, 48-49 (1966), decided the same day as *Graham* v. *John Deere Co., supra*, the Court stated, "While the claims of a patent limit the invention, and specifications cannot be utilized to expand the patent monopoly . . . . it is fundamental that claims are to be construed in the light of the specification and both are to be read with a view to ascertaining the invention."

The specification of the '260 patent makes the following statement:

> "One of the problems in rapid molding inexpensive thin-walled articles from foamable material is that it is difficult to fill the mold with the pre-foamed beads and properly heat them. Many ways have been tried, but prior to this invention it has never been possible to successfully fill and heat the thin walls of the mold." (Plt. Ex. No. 7, col. 4, lines 64-69.)

Since this '260 application was filed eleven months after the filing of the '705 patent application, this statement from the '260 application confirms what Crown has previously admitted: that the machine disclosed in the '705 and '780 patent (built in 1955-1956) was not successful. The reason for this, according to Crown, was the poor quality of the polystyrene beads being supplied by Koppers. The '260 machine was subsequently built to solve this problem, did solve it, and became Crown's workhorse for a number of years.

In ascertaining the invention of the '260 type machine

the question naturally arises as to what it was that made the '260 type machine successful and the machine disclosed in the '705 and '780 patents not successful. It could not have been the use of a vacuum (air pressure differential) to convey the beads into the mold cavity since both the '260 and '780 type machines both had a vacuum feed.

According to the testimony of one of the inventors and patentees, James Harrison, the nonuniform beads would not make the right angle bends in the '780 type machine, occurring at the inlet opening 52 (Appendix IV) and, where the top of the cavity meets the side cavity walls; that the beads would bridge up at these two locations and prevent further flow of bead material into the mold cavity; and that they therefore developed a second machine ('260 machine) having a completely open cavity element so that the beads would have "a straight shot down the side wall" (RT 1194-95).

The '260 specification emphasizes this "completely open top" structure (See Plt. Ex. No. 7, col. 1, lines 66-67 and col. 6, lines 72-75).

Turning now to the previously discussed prior art, it is seen that the Smucker, et al, patent teaches, in essence, all the basic elements of claim 12 of the '260 patent except for an air pressure differential for conveying the plastic material into the mold cavity. The Laraway, et al, patent teaches all the elements of claim 12 except the air pressure differential, the valve and a cavity element open at both ends.

The Jeffery patent teaches the application of a vacuum (air pressure differential) to fill a mold cavity. This Court has previously found the specific embodiment of applying a vacuum at a peripheral gap (such as the stripper ring 68 in the '780 and '705 patents) to load a mold cavity with polystyrene beads to be obvious.

Accordingly, it would appear that claim 12 of the '260 patent should be declared invalid for the same reasons enunciated in connection with the claims of the '705 and '780 patents. However, claim 12 can be read in a manner such that its validity can be upheld.

Neither the Smucker, et al, patent nor the Laraway, et al, patent teaches a cavity element "completely" open at both ends. In Smucker, et al, the end from which the plastic material is introduced in not open, but solid, except for a pinhole through which the plastic material enters. In Laraway, et al, one end of the cavity element is completely solid.

Regarding this element of the claim, claim 12 provides "a cavity element open at both ends." Plaintiff Crown claims that this language does not mean a cavity element "completely" open at both ends, but any opening however small, such as the inlet opening 52 in the '780 patent.

The '260 patent specification speaks only of a "completey open top" (Col. 1, ll. 66-67) and, as we have seen, the heart of the '260 invention is a completely open cavity at the top so that, in the words of inventor Harrison, the beads would have "a straight shot down the side wall".

It is the opinion of the Court that if claim 12 is so restricted to a cavity element "completely" open at both ends, that the differences between the subject matter of the '260 patent and the prior art references of Smucker, et al, Laraway, et al, and Jeffery would not have been obvious at the time the '260 invention was made to a person having ordinary skill in the art. This conclusion is bolstered by certain secondary considerations as to which the Court in *Graham* v. *John Deere Company, supra,* at 35-36, stated:

> "These legal inferences or subtests do focus attention on economic and motivational rather than technical

> issues and are, therefore, more susceptible of judicial treatment than are the highly technical facts often present in patent litigation. * * * Such inquiries may lend a helping hand to the judiciary which, as Mr. Justice Frankfurter observed, is most ill-fitted to discharge the technological duties cast upon it by patent legislation. * * * They may also serve to 'guard against slipping into use of hindsight' * * * and to resist the temptation to read into the prior art the teachings of the invention in issue."

The '260 type molding machine was the first commercially successful automatic machine for molding thin-walled articles from polystyrene beads. This machine served as the sole producer of foam cups for over two years. It was the only machine which manufactured foam cups during the entire time that polystyrene beads of a nonuniform and wide range diameter size were on the market. This machine was designed and did solve the materials problem by having a completely open top to the cavity element. The public's reception of the polystyrene foam cup was phenomenal. Furthermore, it is important to note that in spite of the public demand during the period that the nonuniform F-40 beads were on the market (1957-1960), no one else competed in the manufacture of foam cups with plaintiff Crown.

Accordingly, it is the opinion of this Court that claim 12 of the '260 patent, *as construed in this opinion*, meets the test of novelty and non-obviousness as provided in 35 U. S. C. §§ 102, 103 and therefore is valid.

V. Infringement.

A. *Description of the Thompson Machine.*

The alleged infringing device, the Thompson machine (Appendix VII), is an automatic machine for molding thin-walled foam cups from polystyrene beads and has core and

cavity elements 40 and 38, respectively, disposed so that the cup will be molded upside down. An inlet opening 50 in the cavity element 38 allows the beads to be supplied from tube 22 and passage 28 into the mold cavity 70. A plunger 32 opens and closes the inlet opening 50. When the plunger 32 is in the raised position, plastic beads can flow into the mold cavity.

The Thompson machine uses a means of positive pressure to convey the beads into the mold cavity. This is specifically accomplished by a source of high pressure air communicated to an inner passage of the plunger 32. When the plunger is raised, an air current issues from the end of the plunger at 52 and conveys the beads into the mold cavity 70. The air exits at a permanent peripheral gap shown by the letter A.

After the mold cavity of the Thompson machine is filled with beads, steam is admitted to heating chambers in the cavity and core elements, which heat the beads causing them to expand and fuse together into the foam cup. Cooling fluid is then circulated through the chambers to chill and solidify the molded cup. Then the cavity is opened by raising the cavity element and the molded cup is ejected from the core element.

B. *Infringement of '705 and '780 Patents.*

Having decided that the '705 patent and claims 1 and 3 of the '780 patent are invalid for lack of non-obviousness, it would be illogical, as hereinafter explained, for the Court to consider whether, assuming the claims valid, the above patents are infringed by the Thompson machine. Infringement would depend on how narrow the claims should be read in view of the specification and prosecution history. Defendant Sutherland argues that the specification and prosecution history of the '705 and '780 patents

requires a narrow reading of the claims in issue so as to exclude several elements of the Thompson machine from the claims of the '705 and '780 patents. Plaintiff Crown, on the other hand, argues that if these claims are valid, they should be read broadly to encompass the aforesaid elements of the Thompson machine.

Having held the subject matter of the '705 patent, and claims 1 and 3 of the '780 patent to be obvious to one having ordinary skill in the art (in view of the cited prior art) any construction of these claims would have to be narrow. In fact, in the opinion of the Court, so narrow "as to be non-existent." On this point see the recent decision of the United States Court of Appeals for the Ninth Circuit in *M. O. S. Corp.* v. *John I. Haas Company*, 375 F. 2d 614, 619 (9th Cir. 1967). Accordingly, the Court will refrain from ruling on the question of whether the Thompson machine infringes the '705 patent and claims 1 and 3 of the '780 patent, assuming that they did meet the test of patentability.

C. *Infringement of '260 Patent.*

In upholding the validity of claim 12 of the '260 patent, this Court held that the claim must be restricted to "a cavity element completely open at both ends." This completely open top feature was the heart of the '260 invention in that the non-uniform beads would have a "straight shot down the side walls."

The Thompson machine does not have a completely open top cavity. As seen in Appendix VII, the only opening in the top of the cavity is the inlet opening 50 through which the beads pass. Thus the beads in the Thompson machine must, like the beads in the unsuccessful machines described in the '705 and '780 patents, make a right angle turn at the inlet opening 50 and where the top of the cavity meets the side walls of the cavity.

This element—completely open top to the cavity—is, as heretofore explained, the feature upon which patentability was found by the Court.

Accordingly, the lack of this element in the Thompson machine requires a finding that the Thompson machine does not come within the ambit of claim 12 of the '260 patent.

In addition to the foregoing distinction between the '260 machine and the Thompson machine, these two machines differ in a second substantial manner: The valve in the '260 machine is in the form of a horizontally moving slide valve, whereas the Thompson machine has a vertically moving plunger. While claim 12 does not specify any particular type of valve for controlling the supply of beads, inherent in the '260 machine with its completely open top is a valve which will permit the beads to have "a straight shot down the side walls". The plunger type valve of the Thompson machine does not permit the beads to have a straight shot down the side walls. Accordingly, to infringe claim 12 of the '260 patent, there must be in addition to a completely open top, a valve which, like the '260 slide valve, permits the beads to either fall or be drawn directly down into the cavity which forms the cylindrical walls of the foam cup.

Accordingly, it is the conclusion of the Court that the Thompson machine does not infringe claim 12 of the '260 patent as construed herein.

VI. Antitrust Counterclaim.

The present case also involves a counterclaim by defendant Sutherland alleging that Crown has violated Section 2 of the Sherman Act, 15 U. S. C. § 2 (1964), in its obtaining and/or use of the '780, '705 and '260 patents.

Sutherland contends that Crown obtained its '705 and

'780 patents by fraud on the United States Patent Office, and that Crown has used the patents to attempt to and to monopolize the business of manufacturing and selling foam cups in violation of Section 2 of the Sherman Act.

The evidence presented by Sutherland in support of its claim that Crown committed fraud on the Patent Office, boils down to certain amendments which Crown added to the specification and claims of the '705 and '780 patent applications while they were pending in the United States Patent Office. These amendments have been previously discussed in great detail. They pertain to Crown's inclusion in the specification and claims of the '705 and '780 patent applications of the air pressure differential and positive air pressure means for loading the mold cavity. Sutherland contends that these amendments enlarged the scope of the aforesaid applications and appropriated improvements and inventions made by others, which had previously gone into the public domain.

This Court has previously found that Crown's amendment of January 14, 1963, to the '780 patent application wherein it *claimed* for the first time a positive air pressure means for loading the mold cavity—was the direct result of Crown's President Harrison's inspection of a Thompson machine, and his report to Crown's patent attorney that the Thompson machine used "positive pressure."

In the case of the '705 patent application, this Court has previously found that the amendment of January 3, 1961—wherein Crown *claimed* for the first time the application of an air pressure differential to fill the mold cavity—was the result of Koppers' introduction of the F-40-C bead which eliminated the problem of preliminarily sizing the beads (the sole feature upon which Crown had most recently predicated patentability). This amendment of January 3, 1961, occurring prior to Harrison's inspection of the Thompson machine, did not include the specific

claiming of "positive air pressure", as in the case of the January 14, 1963, amendment to the '780 patent application, nor did it include any amendment to the specification providing for the "positive air pressure" embodiment of air pressure differential. Rather, it was not until August 21, 1964, after the aforesaid inspection, and after the Board of Appeals had reversed the Examiner, that Crown amended the '705 patent application specification to include "positive pressure".

Crown contends that the amendments adding "positive pressure" to the '705 and '780 patent applications merely reintroduced what it discovered to be an inadvertent deletion from its '705 patent application as a result of its amendment on October 17, 1967 (Plaintiff's Reply Brief, p. 20).

That deletion from the specification of the '705 patent application[7] was part and parcel of Crown's amendments of the same date wherein it limited all its claims (save one) to "vacuum" loading, and argued that the patentability of its invention rested on vacuum means for loading the beads into the mold cavity. This could hardly have been inadvertent. Its reintroduction years later was not the result of any discovery that it had been inadvertently deleted, but rather, was the result of its discovery that its competitors had successfully used "positive pressure" to load the mold cavity.

Accordingly, it is the finding of this Court that Crown intended to and did enlarge the scope of its '705 and '780 patent applications while they were pending before the

7. This deletion was solely from the '705 patent application specification and consisted of the following language: "While we have stated that loading the cavity is done by vacuum it might be more accurate to say that loading is done by the creation of a pressure differential. For example, we might apply a positive pressure to the inlet or gate opening and blow the prefoamed beads into the mold."

United States Patent Office for the purpose of appropriating the "positive pressure" improvement for loading the mold cavity—an improvement developed by persons other than Crown.

However, this Court is of the opinion that such conduct does not constitute fraud on the United States Patent Office within the meaning of the recent case of *Walker Process Equipment, Inc.* v. *Food Machinery & Chemical Corp.*, 382 U. S. 172 (1965). There, the United States Supreme Court held that the maintenance and enforcement of a patent obtained by fraud on the Patent Office may be the basis of an action under Section 2 of the Sherman Act. Concerning what constitutes fraud on the Patent Office, the Court stated at 177:

> "Walker's counterclaim alleged that Food Machinery obtained the patent by knowingly and wilfully misrepresenting facts to the Patent Office. Proof of this assertion would be sufficient to strip Food Machinery of its exemption from the antitrust laws. By the same token, Food Machinery's good faith would furnish a complete defense. This includes an honest mistake as to the effect of prior installation upon patentability —so-called 'technical fraud' ".

This Court does not consider Crown's conduct in enlarging the scope of its '705 and '780 patent applications to appropriate improvements made by others as coming within the type of fraud contemplated by the *Walker* case, to wit: "knowingly and wilfully misrepresenting facts to the Patent Office."

Nevertheless, Crown's conduct in expanding the scope of its '705 and '780 patent applications is to be considered in terms of whether or not Crown has monopolized or attempted to monopolize a part of trade or commerce under Section 2 of the Sherman Act. Sutherland has introduced evidence tending to show that whenever a foam cup com-

petitor appeared on the scene, Crown demanded information from that competitor on the structure of its foam cup manufacturing equipment. (See Def. Ex. Nos. U-H-1, U-H-20, U-H-38, U-H-39, U-H-40, U-H-41, U-H-42 and U-H-43). The information then gained was in some cases used, as in the case of the inspection of the Thompson machine by Crown's President Harrison, to enlarge the scope of Crown's '705 and '780 patent applications.

After acquiring such information from its competitors, Crown then invariably informed said competitor that they were infringing Crown patents and/or Crown patent applications pending in the United States Patent Office. In charging infringement, Crown relied, in part, upon the '705 and '780 patents and/or patent applications. In cases where competitors did not cease the alleged infringement, Crown instituted an infringement suit against them relying upon various Crown patents, including but not limited to its '705 and '780 patents. To date, Crown has filed at least seven different suits in various United States District Courts against alleged infringers.

Even though Crown has charged many persons with infringement, Sutherland has not introduced sufficient evidence to indicate that these claims by Crown were made in bad faith or were not well founded. In its claims of infringement against competitors, Crown relied, in part, upon patents and claims of patents that were not the subject matter of this suit. Sutherland has not presented evidence, as it could have, on the question of the validity of these other claims and whether or not there is any semblance of infringement of them by the various competitors Crown has charged with infringement.

Accordingly, except for this suit, this Court cannot determine whether Crown's conduct as to other competitors was or was not a good faith effort to enforce valid patent claims. Thus, this Court is not in a position to appraise the

exclusionary power of the patent claims of the '705 and '780 patents as illegally expanded to include "positive pressure"—in terms of the relevant market—a necessary element for Sutherland to prove in order to show a violation of Section 2 of the Sherman Act. *Walker Process Equipment, Inc.* v. *Food Machinery & Chemical Corp., supra.* The other evidence introduced by Sutherland (Crown's license agreements and their terms, etc.) does not, in the opinion of this Court meet the proof of a Section 2 violation.

It is therefore the finding and conclusion of the Court that Sutherland has failed to establish that Crown violated Section 2 of the Sherman Act.

VII. Award of Attorney Fees.

In its prayer for relief, Sutherland has requested a judgment for costs and reasonable attorneys' fees under 35 U. S. C. § 285, which provides that the "Court in exceptional cases may award reasonable attorney fees to the prevailing party."

This Court believes that the instant suit falls within those cases deemed "exceptional" by Sec. 285, and that Sutherland should receive its attorney fees. In view of the conduct by Crown, heretofore discussed, equitable considerations make it grossly unfair that Sutherland be left to bear the burden of its own counsel fees. *Day-Brite Lighting, Inc.* v. *Ruby Lighting Corp.*, 191 F. 2d 521 (9th Cir. 1951); *Park-In Theatres* v. *Perkins*, 190 F. 2d 137 (9th Cir. 1950).

While Crown alleged in the instant suit that its '260 patent was infringed by Sutherland, the real basis of Crown's suit herein was upon the '705 and '780 patents and particularly the "positive air pressure" or "blow" filling element of these patents. This Court has found that this

element of "positive pressure" was appropriated by Crown from others and used to enlarge the scope of its '705 and '780 patent applications. Such activity has been condemned on numerous occasions. *Railway Co.* v. *Sayles*, 97 U. S. 554, 563 (1878); *Muncie Gear Co.* v. *Outboard Co.*, 315 U. S. 759, 768 (1942).

Since the illegal enlargement by Crown of its '705 and '780 patent applications has been the keystone of this suit, Crown should pay Sutherland its attorney fees as contemplated by 35 U. S. C. § 285.

Accordingly, it is the order of this Court that defendant Sutherland should be and hereby is awarded its reasonable attorney fees. Counsel for Sutherland shall notice with the Clerk of this Court a hearing date for determining the amount of said fees.

This Memorandum of Decision shall constitute the Findings of Fact and Conclusions of Law as required by Rule 52 of the Federal Rules of Civil Procedure.

Dated: September 25th, 1967.

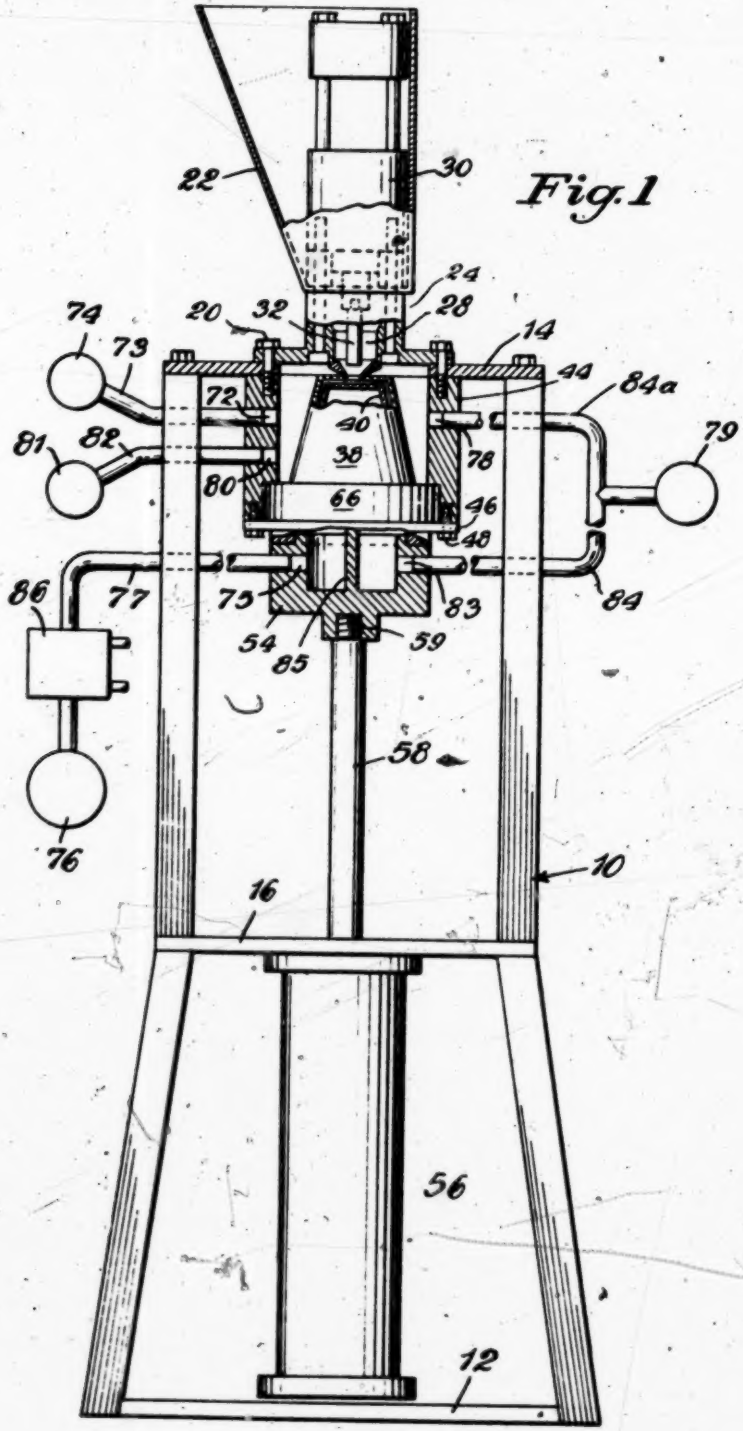
W. T. SWEIGERT,
United States District Judge.

Dec. 22, 1964 R. E. SMUCKER ETAL 3,162,705

METHOD FOR MAKING PLASTIC CONTAINERS

Filed Oct. 30, 1956 2 Sheets-Sheet 1

Fig. 1

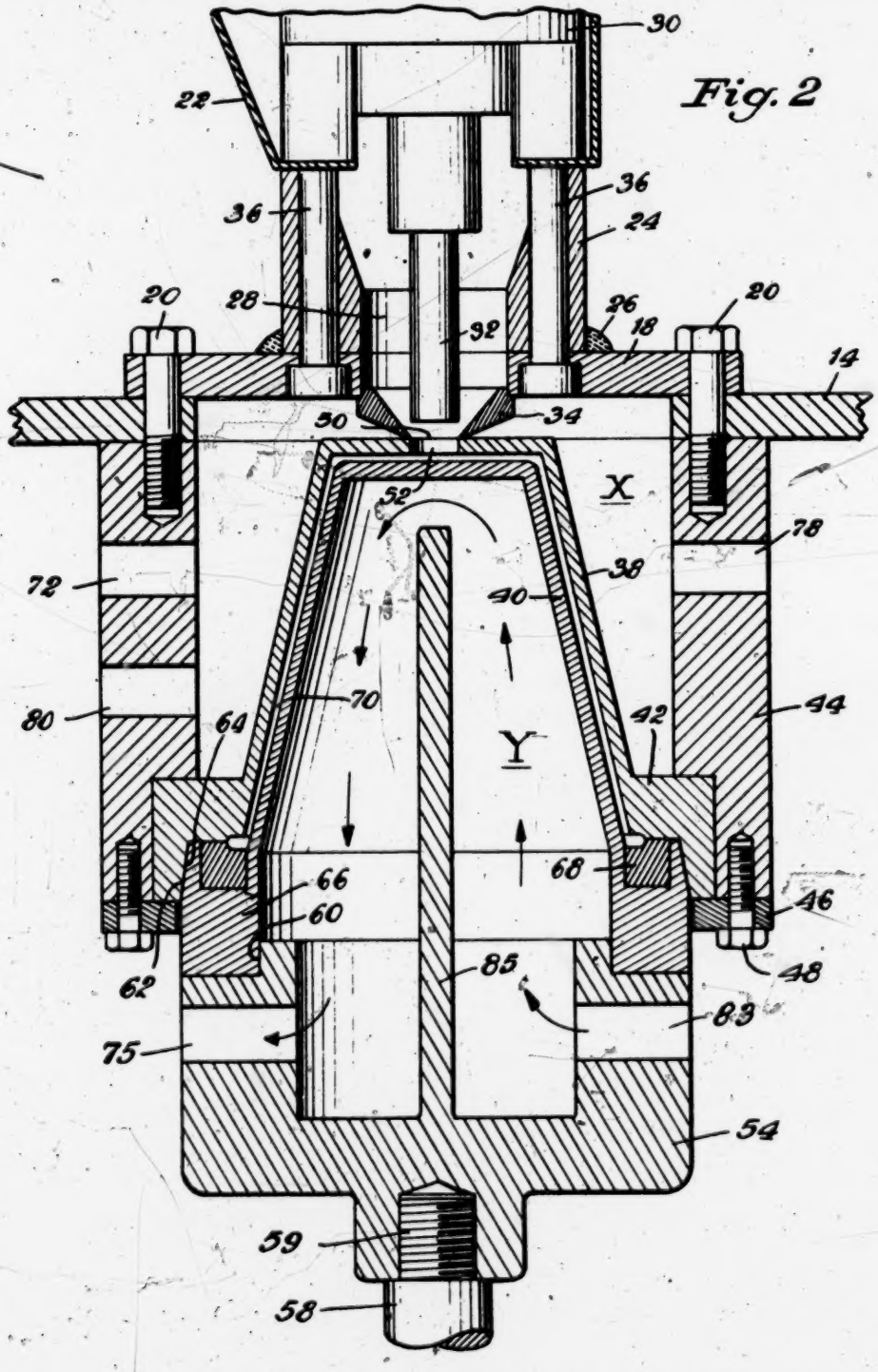


Dec. 22, 1964 R. E. SMUCKER ETAL 3,162,705

METHOD FOR MAKING PLASTIC CONTAINERS

Filed Oct. 30, 1956 2 Sheets-Sheet 2

Fig. 2



March 24, 1964 J. M. HARRISON ETAL 3,125,780

APPARATUS AND METHOD FOR MAKING PLASTIC CONTAINERS

Original Filed Oct. 30, 1956 2 Sheets-Sheet 1

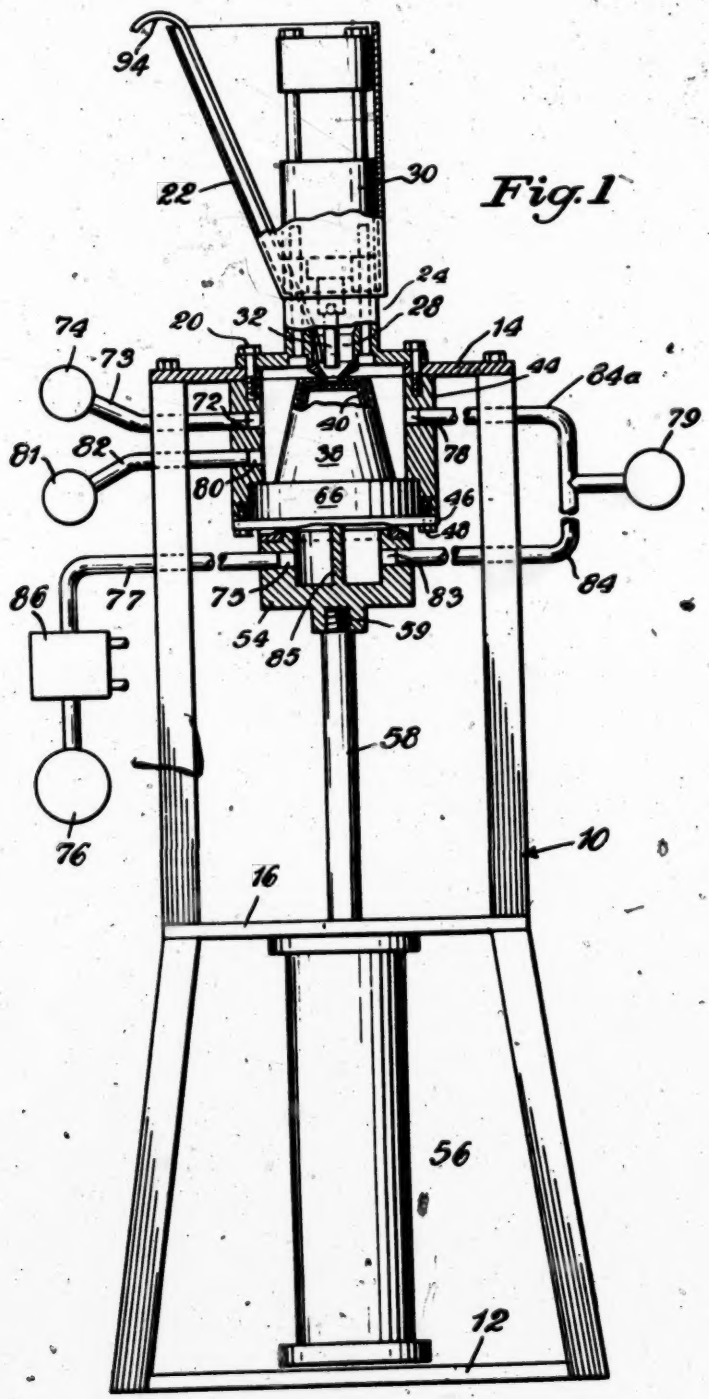


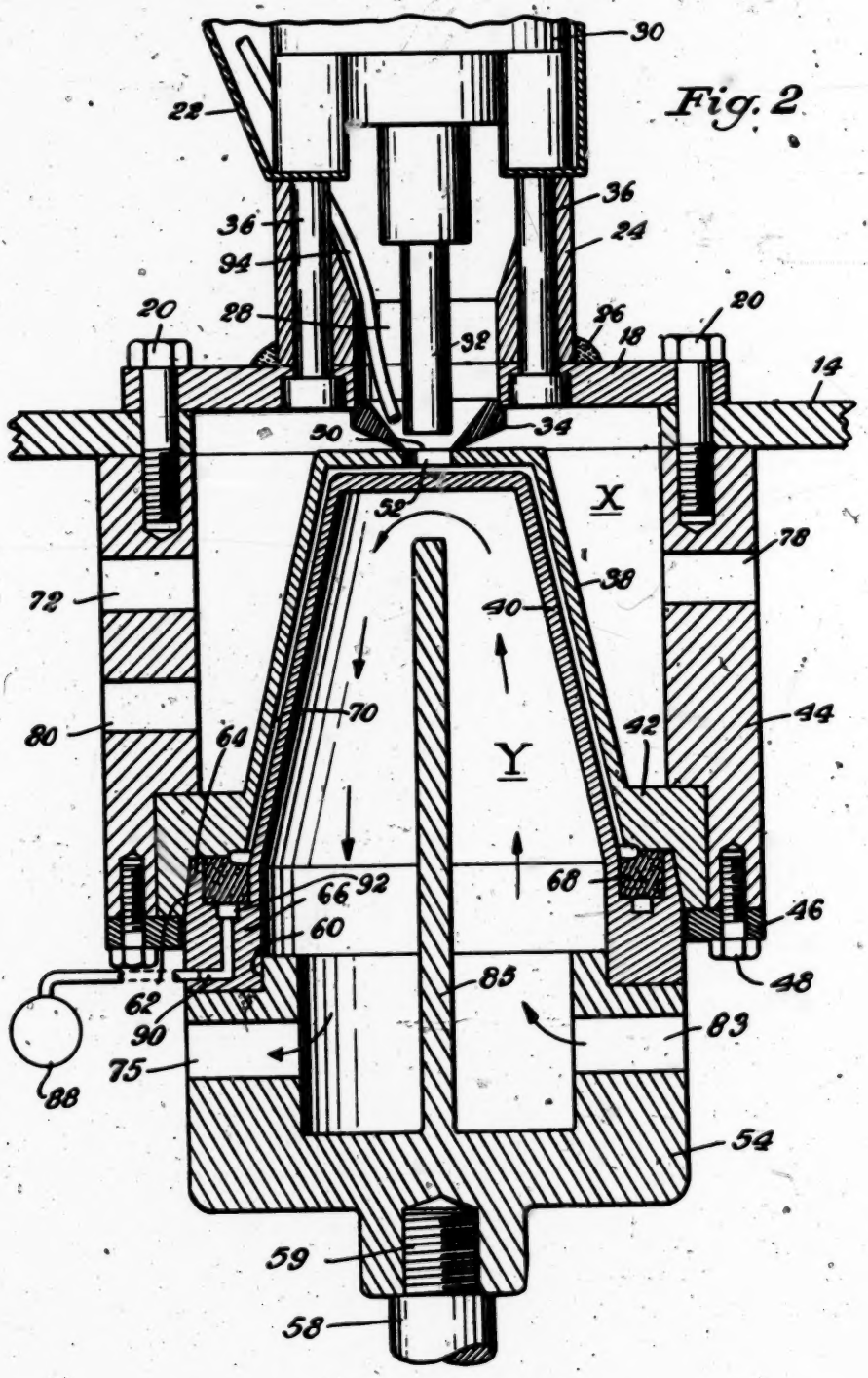
Fig. 1

March 24, 1964 J. M. HARRISON ETAL 3,125,780

APPARATUS AND METHOD FOR MAKING PLASTIC CONTAINERS

Original Filed Oct. 30, 1956 2 Sheets-Sheet 2

Fig. 2



Sept. 6, 1960 J. M. HARRISON ET AL 2,951,260

MOLDING MECHANISM AND HEATING ARRANGEMENT

Filed Oct. 1, 1957 4 Sheets-Sheet 1

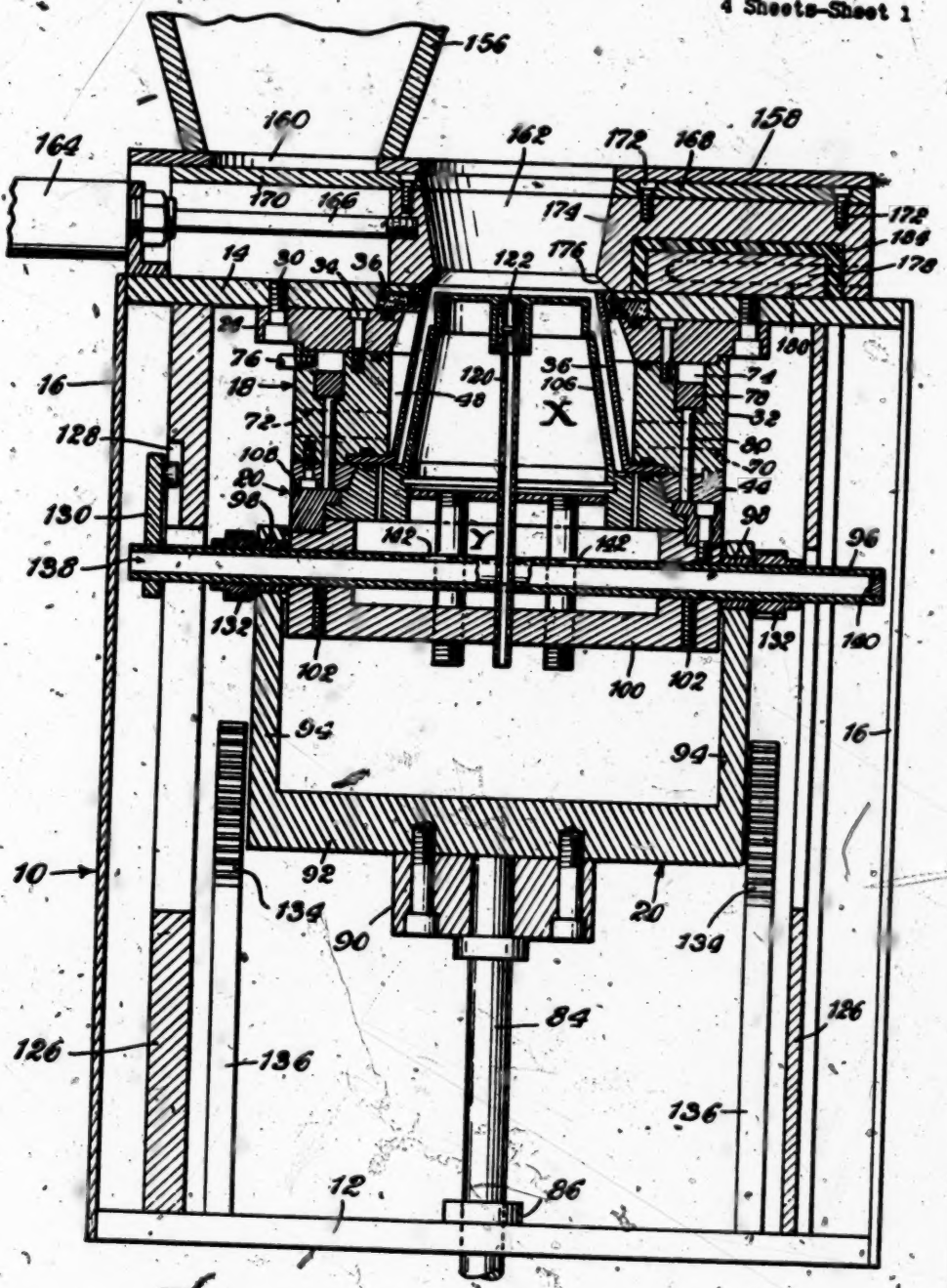


Fig. 1

Sept. 6, 1960 J. M. HARRISON ET AL 2,951,260

MOLDING MECHANISM AND HEATING ARRANGEMENT

Filed Oct. 1, 1957 4 Sheets-Sheet 2

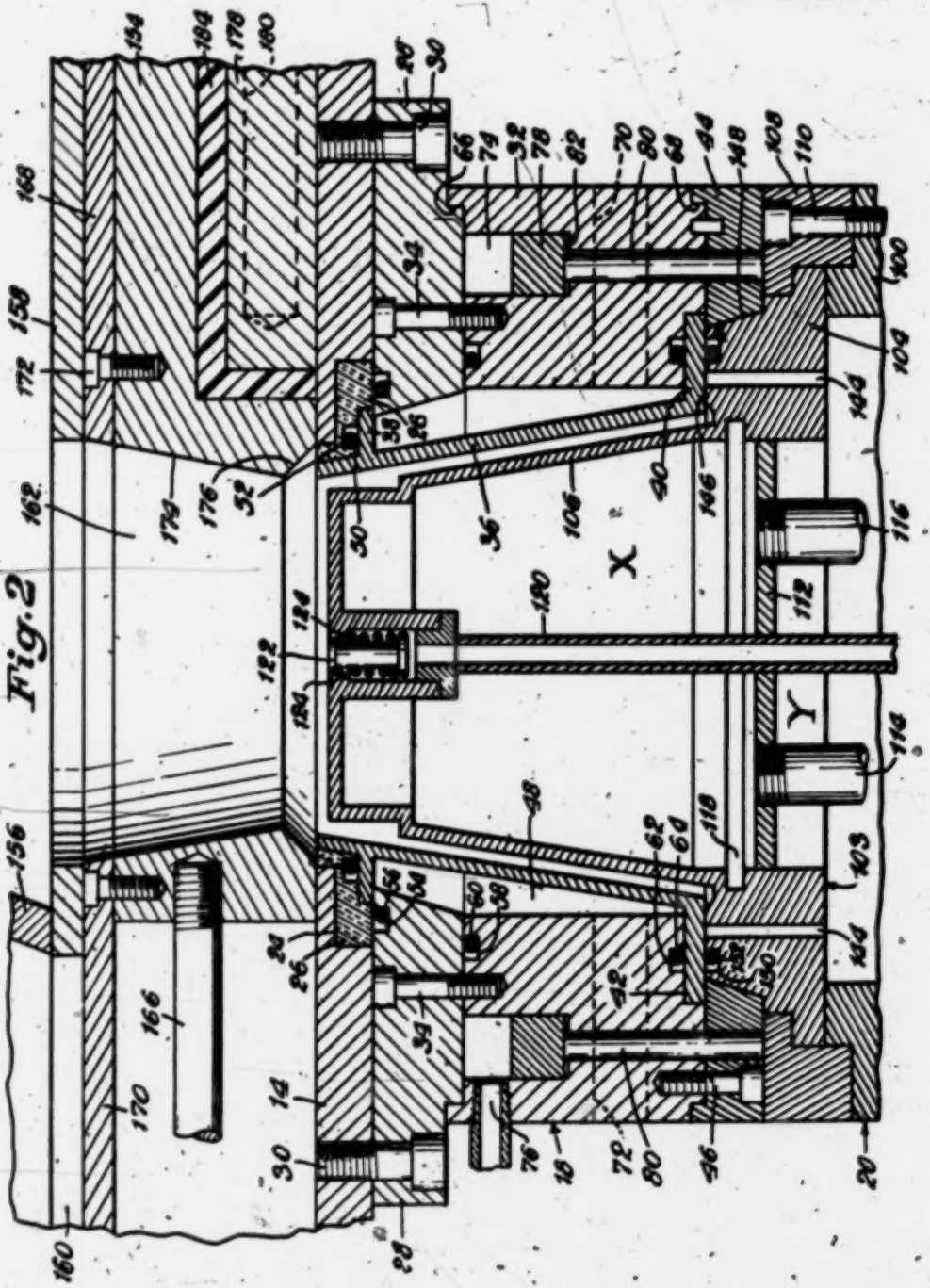
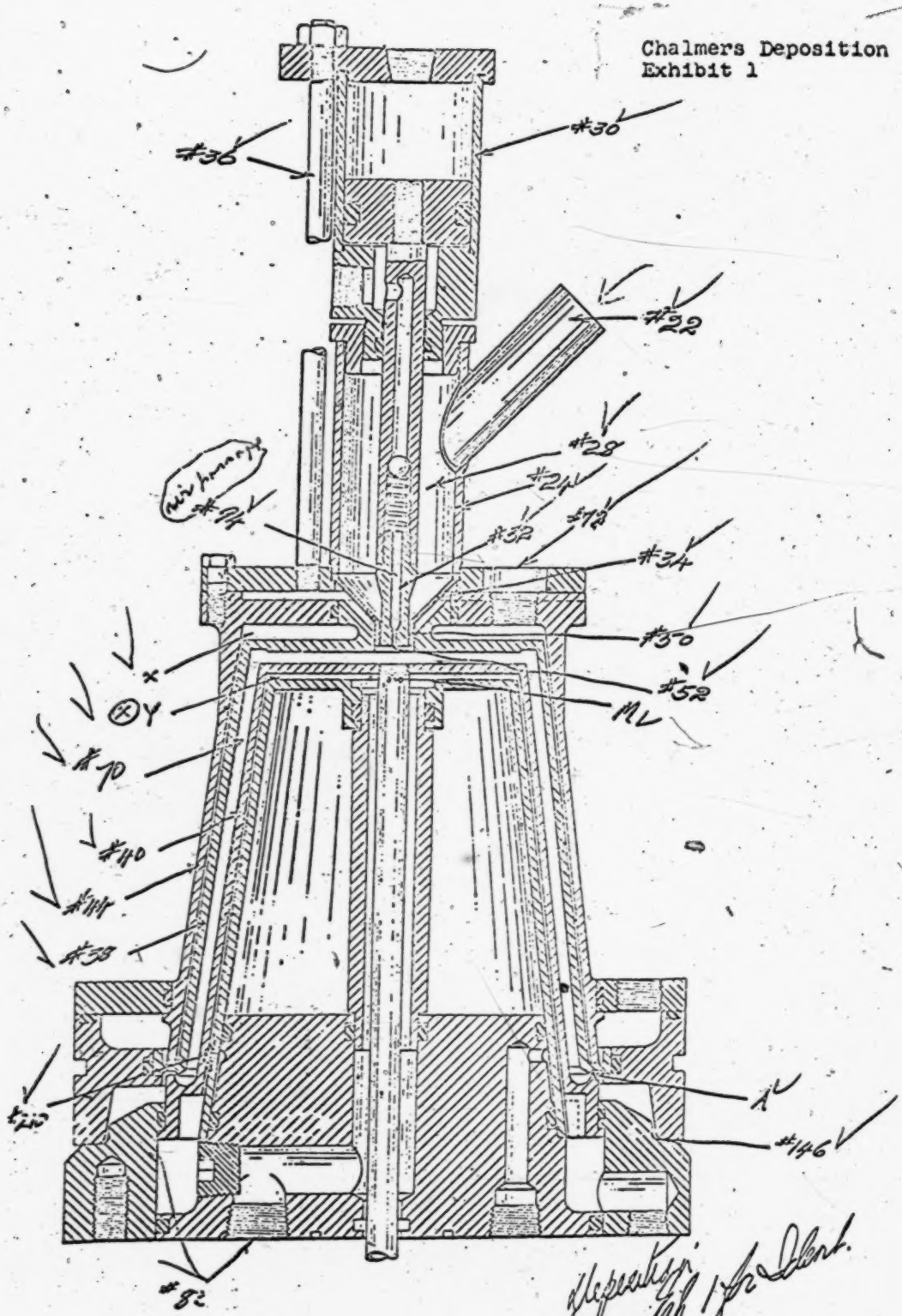


Fig. 2

Chalmers Deposition
Exhibit 1



APPENDIX D.

(Stamp) Original Filed Apr 4 1968, Clerk, U. S. Dist. Court, San Francisco.

UNITED STATES DISTRICT COURT,
Northern District of California.

Crown Machine & Tool Co., a corporation, *Plaintiff*, *vs.* KVP-Sutherland Paper Company, a corporation, *Defendant*.	No. 42224.

MEMORANDUM OF DECISION.

This is a patent infringement action, brought by plaintiff against the KVP-Sutherland Paper Company. The defendant Sutherland counterclaimed, charging plaintiff with violation of the anti-trust laws.

On September 26, 1967, this Court filed its Memorandum of Decision, containing the findings of fact and conclusions of law herein. The Court held:

(1) That two of plaintiff's patent claims (the '705 and '780) were invalid on the ground that they failed to meet the test of non-obviousness required by 35 U. S. C. § 103. (Memorandum of Decision pp. 24 and 35);

(2) That claim 12 of the '260 patent, while valid, was not infringed by the Thompson Machine. (Memorandum p. 43);

(3) That defendant Sutherland failed to establish that plaintiff violated the Sherman Act. (Memorandum of Decision, p. 53); and

(4) That defendant Sutherland should be awarded its reasonable attorney fees. (Memorandum of Decision p. 54).

The case is presently before the Court on plaintiff's motion to amend finding No. (4) above.

The Court has held that the real basis of Crown's action was the '705 and '780 patents and particularly the "positive air pressure" or "blow" filling element thereof, and that this element of positive pressure was appropriated by Crown from others and used to enlarge the scope of the '705 and '780 patent applications. Noting that such activity has been condemned on numerous occasions, the Court stated (Memorandum of Decision, p. 54):

> "Since the illegal enlargement by Crown of its '705 and '780 patent applications has been the keystone of this suit, Crown should pay Sutherland its attorney fees as contemplated by 25 U. S. C. 285."

The cases cited in support of the Court's holding that the activity of enlarging the scope of one's patent with information obtained from others is improper, are *Railway Co.* v. *Sayles*, 97 U. S. 554, 563 (1878); and *Muncie Gear* v. *Outboard Co.*, 315 U. S. 759, 768 (1942). These cases stand for the proposition that the law does not permit enlargement of original patent applications by amendment where the amendment adds new claims, not within the scope of the original application, which interfere with other inventions that have entered the field in the meantime. The Supreme Court, in the *Railway* case, pp. 563-564 stated:

> "Courts should regard with jealousy and disfavor any attempts to enlarge the scope of an application once filed, or of a patent once granted, the effect of which would be to enable the patentee to appropriate other inventions made prior to such alteration."

Plaintiff contends that it had a duty to investigate potentially infringing machines before threatening or actually bringing infringement actions, and that, once information was gained from such inspection, it was proper to amend its existing claims to cover new matter so long as the amendments did not exceed the scope of the original patent disclosures.

To support this argument, Crown states that it had a duty and a right to investigate possible infringement of its '260 patent which the Court held was valid. However, the amendments held to be improper in the pending case all relate to the '705 and '780 patents, which the Court has held invalid and which the Court has further found to be the "keystone of this suit."

Plaintiff next contends that, "assuming that Crown's conduct in obtaining the '705 and '708 (*sic*) patents went beyond the limits of propriety set by the Patent Office and the courts, Crown's conduct was still not sufficiently reprehensible to justify the award of attorney's fees to the defendant," citing *Nachtman* v. *Jones and Laughlin Steel Corp.*, 134 F. Supp. 392 (D. C. Pa. 1955); and *Chicopee Manufacturing Corp.* v. *Kendall Co.*, 288 F. 2d 719 (4th Cir. 1961).

However, in neither of these cases is there any indication that the prevailing parties requested attorneys' fees or that any were granted. Further, both of the cases involved such close questions of whether the patents in question were infringed that there could be little doubt that the suits were reasonably brought.

The standard to be applied in determining whether attorney fees should be awarded to the prevailing party is whether there is a showing of unfairness or bad faith in the conduct of the losing party, or any other equitable consideration of similar force which makes it grossly unfair that the winner of the lawsuit be left to bear the burden of his own counsel fees. Thus, where there has been no such showing, the Ninth Circuit has reversed the District Court's grant of attorney fees. *Day-Brite Lighting* v. *Ruby Lighting Corp.*, 191 F. 2d 521 (9th Cir. 1951). Generally, where the claim of a patent application is not litigated in bad faith, an award of attorney's fees is error. *Park-in-Theatres* v. *Perkins,* 190 F. 2d 137 (9th Cir. 1950).

The Court, considering the evidence heretofore discussed, finds that the action can be said to have been brought in bad faith; that it is an exceptional case within the meaning of 35 U. S. C. § 285; and, that reasonable attorney fees should be awarded to the prevailing party.

The motion to amend the Memorandum of Decision with respect to attorney fees is denied.

Dated: April 4th, 1968.

W. T. SWEIGERT,
United States District Judge.